Kawasaki

KX125
KX250

Motorcycle Service Manual

Quick Reference Guide

General Information	1
Periodic Maintenance	2
Fuel System	3
Cooling System	4
Engine Top End	5
Engine Right Side	6
Engine Removal/Installation	7
Engine Bottom End/Transmission	8
Wheels/Tires	9
Final Drive	10
Brakes	11
Suspension	12
Steering	13
Electrical System	14
Appendix	15

This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.
- Refer to the sectional table of contents for the exact pages to locate the specific topic required.

Kawasaki

KX125
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Motorcycle Service Manual

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All information contained in this publication is based on the latest product information available at the time of publication. Illustrations and photographs in this publication are intended for reference use only and may not depict actual model component parts.

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LIST OF ABBREVIATIONS

A	ampere(s)	lb	pound(s)
ABDC	after bottom dead center	m	meter(s)
AC	alternating current	min	minute(s)
ATDC	after top dead center	N	newton(s)
BBDC	before bottom dead center	Pa	pascal(s)
BDC	bottom dead center	PS	horsepower
BTDC	before top dead center	psi	pound(s) per square inch
°C	degree(s) Celsius	r	revolution
DC	direct current	rpm	revolution(s) perminute
F	farad(s)	TDC	top dead center
°F	degree(s) Fahrenheit	TIR	total indicator reading
ft	foot, feet	V	volt(s)
g	gram(s)	W	watt(s)
h	hour(s)	Ω	ohm(s)
L	liter(s)		

Read OWNER’S MANUAL before operating

Foreword

This manual is designed primarily for use by trained mechanics in a properly equipped shop. However, it contains enough detail and basic information to make it useful to the owner who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and workshop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the owner has insufficient experience or doubts as to his ability to do the work, all adjustments, maintenance, and repair should be carried out only by qualified mechanics.

In order to perform the work efficiently and to avoid costly mistakes, read the text, thoroughly familiarize yourself with the procedures before starting work, and then do the work carefully in a clean area. Whenever special tools or equipment are specified, do not use makeshift tools or equipment. Precision measurements can only be made if the proper instruments are used, and the use of substitute tools may adversely affect safe operation.

To get the longest life out of your motorcycle:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki motorcycle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki Motorcycles are introduced by the Special Tool Manual. Genuine parts provided as spare parts are listed in the Parts Catalog.
- Follow the procedures in this manual carefully. Don't take shortcuts.
- Remember to keep complete records of maintenance and repair with dates and any new parts installed.

How to Use this Manual

In this manual, the product is divided into its major systems and these systems make up the manual's chapters. The Quick Reference Guide shows you all of the product's system and assists in locating their chapters. Each chapter in turn has its own comprehensive Table of Contents.

For example, if you want ignition coil information, use the Quick Reference Guide to locate the Electrical System chapter. Then, use the Table of Contents on the first page of the chapter to find the Ignition Coil section.

Whenever you see these WARNING and CAUTION symbols, heed their instructions! Always follow safe operating and maintenance practices.

⚠ WARNING

This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.

CAUTION

This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

This manual contains four more symbols (in addition to WARNING and CAUTION) which will help you distinguish different types of information.

NOTE

○ *This note symbol indicates points of particular interest for more efficient and convenient operation.*

- ● Indicates a procedural step or work to be done.
- ○ Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a NOTE.
- ★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

In most chapters an exploded view illustration of the system components follows the Table of Contents. In these illustrations you will find the instructions indicating which parts require specified tightening torque, oil, grease or a locking agent during assembly.

General Information

Table of Contents

Before Servicing 1-2
Model Identification..... 1-5
General Specifications..... 1-7
Technical Information..... 1-13
Unit Conversion Table 1-21

1-2 GENERAL INFORMATION

Before Servicing

Before starting to perform an inspection service or carry out a disassembly and reassembly operation on a motorcycle, read the precautions given below. To facilitate actual operations, notes, illustrations, photographs, cautions, and detailed descriptions have been included in each chapter wherever necessary. This section explains the items that require particular attention during the removal and reinstallation or disassembly and reassembly of general parts.

Especially note the following:

(1) Dirt

Before removal and disassembly, clean the motorcycle. Any dirt entering the engine will shorten the life of the motorcycle. For the same reason, before installing a new part, clean off any dust or metal filings.

(2) Battery Ground

Disconnect the ground (–) wire from the battery before performing any disassembly operations on the motorcycle. This prevents the engine from accidentally turning over while work is being carried out, sparks from being generated while disconnecting the wires from electrical parts, as well as damage to the electrical parts themselves. For reinstallation, first connect the positive wire to the positive (+) terminal of the battery

(3) Installation, Assembly

Generally, installation or assembly is the reverse of removal or disassembly. However, if installation or assembly sequence is given in this Service Manual, follow it. Note parts locations and cable, wire, and hose routing during removal or disassembly so they can be installed or assembled in the same way. It is preferable to mark and record the locations and routing whenever possible.

(4) Tightening Sequence

When installing bolts, nuts, or screws for which a tightening sequence is given in this Service Manual, make sure to follow the sequence. When installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit, thus ensuring that the part has been installed in its proper location. Then, tighten them to the specified torque in the tightening sequence and method indicated. If tightening sequence instructions are not given, tighten them evenly in a cross pattern. Conversely, to remove a part, first loosen all the bolts, nuts, or screws that are retaining the part a 1/4-turn before removing them.

(5) Torque

When torque values are given in this Service Manual, use them. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.

(6) Force

Common sense should dictate how much force is necessary in assembly and disassembly. If a part seems especially difficult to remove or install, stop and examine what may be causing the problem. Whenever tapping is necessary, tap lightly using a wooden or plastic-faced mallet. Use an impact driver for screws (particularly for the removing screws held by non-permanent locking agent) in order to avoid damaging the screw heads.

(7) Edges

Watch for sharp edges, as they could cause injury through careless handling, especially during major engine disassembly and assembly. Use a clean piece of thick cloth when lifting the engine or turning it over.

(8) High-Flash Point Solvent

A high-flash point solvent is recommended to reduce fire danger. A commercial solvent commonly available in North America is standard solvent (generic name). Always follow manufacturer and container directions regarding the use of any solvent.

(9) Gasket, O-ring

Replace a gasket or an O-ring with a new part when disassembling. Remove any foreign matter from the mating surface of the gasket or O-ring to ensure a perfectly smooth surface to prevent oil or compression leaks.

(10) Liquid Gasket, Locking Agent

Clean and prepare surfaces where liquid gasket or non-permanent locking agent will be used. Apply them sparingly. Excessive amount may block engine oil passages and cause serious damage.

Before Servicing

(11) Press

When using a press or driver to install a part such as a wheel bearing, apply a small amount of oil to the area where the two parts come in contact to ensure a smooth fit.

(12) Ball Bearing and Needle Bearing

Do not remove a ball bearing or a needle bearing unless it is absolutely necessary. Replace any ball or needle bearings that were removed with new ones. Install bearings with the manufacturer and size marks facing out, applying pressure evenly with a suitable driver. Apply force only to the end of the race that contacts the press fit portion, and press it evenly over the base component.

(13) Oil Seal and Grease Seal

Replace any oil or grease seals that were removed with new ones, as removal generally damages seals. Oil or grease seals should be pressed into place using a suitable driver, applying a force uniformly to the end of seal until the face of the seal is even with the end of the hole, unless instructed otherwise. When pressing in an oil or grease seal which has manufacturer's marks, press it in with the marks facing out.

(14) Circlip, Retaining Ring, and Cotter Pin

When installing circlips and retaining rings, take care to compress or expand them only enough to install them and no more. Install the circlip with its chamfered side facing load side as well.

Replace any circlips, retaining rings, and cotter pins that were removed with new ones, as removal weakens and deforms them. If old ones are reused, they could become detached while the motorcycle is driven, leading to a major problem.

(15) Lubrication

Engine wear is generally at its maximum while the engine is warming up and before all the sliding surfaces have an adequate lubricative film. During assembly, make sure to apply oil to any sliding surface or bearing that has been cleaned. Old grease or dirty oil could have lost its lubricative quality and may contain foreign particles that act as abrasives; therefore, make sure to wipe it off and apply fresh grease or oil. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended.

(16) Direction of Engine Rotation

To rotate the crankshaft manually, make sure to do so in the direction of positive rotation. Positive rotation is counterclockwise as viewed from the left side of the engine. To carry out proper adjustment, it is furthermore necessary to rotate the engine in the direction of positive rotation as well.

(17) Replacement Parts

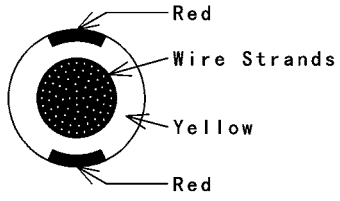
When there is a replacement instruction, replace these parts with new ones every time they are removed.

Replacement parts will be damaged or lose their original function once they are removed. Therefore, always replace these parts with new ones every time they are removed. Although the previously mentioned gasket, O-ring, ball bearing, needle bearing, grease seal, oil seal, circlip, and cotter pin have not been so designated in their respective text, they are replacement parts.

(18) Electrical Wires

All the electrical wires are either one-color or two-color. A two-color wire is identified first by the primary color and then the stripe color. For example, a yellow wire with thin red stripes is referred to as a "yellow/red" wire; it would be a "red/yellow" wire if the colors were reversed. Unless instructed otherwise, electrical wires must be connected to wires of the same color.

Two-Color Electrical

Wire (cross-section)	Color Indicated on the Wire	Color Indicated on the Wiring Diagram
	Yellow/Red	Y/R

GB020601W1 C

Before Servicing

(19)Inspection

When parts have been disassembled, visually inspect these parts for the following conditions or other damage. If there is any doubt as to the condition of them, replace them with new ones.

Abrasion	Crack	Hardening	Warp
Bent	Dent	Scratch	Wear
Color change	Deterioration	Seizure	

(20)Specifications

Specification terms are defined as follows:

"Standards" show dimensions or performances which brand-new parts or systems have.

"Service Limits" indicate the usable limits. If the measurement shows excessive wear or deteriorated performance, replace the damaged parts.

Model Identification

KX125-M1 Left Side View

KX125-M1 Right Side View

Model Identification

KX250-M1 Left Side View

KX250-M1 Right Side View

General Specifications

Items	KX125-M1	KX125-M2 ~
Dimensions		
Overall Length	2 155 mm (84.8 in.)	2 165 mm (85.2 in.)
Overall Width	825 mm (32.5 in.)	840 mm (33.1 in.)
Overall Height	1 200 mm (47.2 in.)	1 265 mm (49.8 in.)
Wheelbase	1 455 mm (57.3 in.)	1 470 mm (57.9 in.)
Road Clearance	340 mm (13.4 in.)	←
Seat Height	930 mm (36.6 in.)	940 mm (37.0 in.)
Dry Mass	87 kg (192 lb)	←
Curb Mass:		
Front	45 kg (99 lb)	←
Rear	47 kg (104 lb)	←
Fuel Tank Capacity	8.2 L (2.2 US gal)	←
Engine		
Type	2-stroke, single cylinder, crankcase reed valve	←
Cooling System	Liquid-cooled	←
Bore and Stroke	54.0 × 54.5 mm (2.13 × 2.15 in.)	←
Displacement	124 mL (7.6 cu in.)	←
Compression Ratio		
Low Speed	10.6 : 1	11.1 : 1 (EU) 10.9 : 1
Low Speed	8.1 : 1	8.5 : 1 (EU) 8.3 : 1
Maximum Horsepower	29.8 kW (40.5 PS) @11 500 r/min (rpm)	30.2 kW (41.0 PS) @11 500 r/min (rpm)
Maximum Torque	26.0 N·m (2.65 kgf·m, 19.2 ft·lb) @10 500 r/min (rpm)	26.5 N·m (2.70 kgf·m, 19.5 ft·lb) @10 500 r/min (rpm)
Carburetion System	Carburetor, MIKUNI TMX38χ	←
Starting System	Primary kick	←
Ignition System	CDI	←
Ignition Timing	13° BTDC @10 010 r/min (rpm)	13° BTDC @9 710 r/min (rpm)
Spark Plug	NGK BR9EIX	NGK R6918B-9
Port Timing		←
Inlet:		←
Open	Full open	-
Close	-	-
Scavenging:		←
Open	64.9° BBDC	←
Close	64.9° ABDC	
Exhaust:		←
Open	73.8° BBDC (low speed),	
	95.4° BBDC (high speed)	←
Close	73.8° ABDC (low speed),	←
	95.4° ABDC (high speed)	←
Lubrication System (Gasoline : Oil)	Petrol mix (32 : 1)	←

General Specifications

Items	KX125-M1	KX125-M2 ~
Drive Train		
Primary Reduction System:		
Type	Gear	←
Reduction Ratio	3.200 (64/20)	←
Clutch Type	Wet, multi disc	←
Transmission:		
Type	6-speed, constant mesh, return shift	←
Gear Ratios:		
1st	2.384 (31/13)	←
2nd	1.857 (26/14)	←
3rd	1.529 (26/17)	←
4th	1.294 (22/17)	←
5th	1.125 (27/24)	←
6th	1.000 (25/25)	←
Final Drive System:		
Type	Chain drive	←
Reduction Ratio	3.923 (51/13)	←
Overall Drive Ratio	12.553 @Top gear	←
Transmission Oil:		
Type	API SE, SF or SG	←
	API SH or SJ with JASO MA	←
Viscosity	SAE 10W-40	←
Capacity	0.7 L (0.74 US qt)	←
Frame		
Type	Tubular, semi-double cradle	←
Steering Angle	45° to either side	42° to either side
Caster (rake angle)	27.5°	27°
Trail	100 mm (3.9 in.)	113 mm (4.4 in.)
Front Tire:		
Size	80/100-21 51M	←
Make/Type	DUNLOP, Tube type	←
Rear Tire:		
Size	100/90-19 57M	←
Make/Type	DUNLOP, Tube type	←
Front Suspension:		
Type	Telescopic fork (up side down)	←
Wheel Travel	300 mm (11.8 in.)	←
Rear Suspension:		
Type	Swingarm (Uni-trak)	Swingarm (New Uni-trak)
Wheel Travel	310 mm (12.2 in.)	←
Brake Type:		
Front and Rear	Single disc	←

General Specifications

Items	KX125-M1	KX125-M2 ~
Effective Disc Diameter:		
Front	220 mm (8.7 in.)	225 mm (8.9 in.)
Rear	200 mm (7.9 in.)	215 mm (8.5 in.)

Specifications are subject to change without notice, and may not apply to every country.
(EUR): Europe Model

General Specifications

Items	KX250-M1	KX250-M2
Dimensions		
Overall Length	2 175 mm (85.6 in.)	←
Overall Width	825 mm (32.5 in.)	840 mm (33.1 in.)
Overall Height	1 205 mm (47.4 in.)	1 265 mm (49.8 in.)
Wheelbase	1 480 mm (58.3 in.)	←
Road Clearance	355 mm (14.0 in.)	340 mm (13.4 in.)
Seat Height	945 mm (37.2 in.)	←
Dry Mass	97 kg (214 lb)	←
Curb Mass:		
Front	50 kg (110 lb)	←
Rear	51 kg (112 lb)	←
Fuel tank Capacity	8.2 L (2.2 US gal)	←
Engine		
Type	2-stroke, single cylinder, piston reed valve	←
Cooling System	Liquid-cooled	←
Bore and Stroke	66.4 × 72.0 mm (2.61 × 2.85 in.)	←
Displacement	249 mL (15.25 cu in.)	←
Compression Ratio		
Low Speed	10.1 : 1	10.5 : 1
High Speed	8.6 : 1	8.8 : 1
Maximum Horsepower	41.1 kW (56.5 PS) @8 500 r/min (rpm)	41.6 kW (56.5 PS) @9 000 r/min (rpm)
Maximum Torque	51.0 N·m (5.2 kgf·m, 37.6 ft·lb) @7 500 r/min (rpm)	49.0 N·m (5.0 kgf·m, 36.2 ft·lb) @8 000 r/min (rpm)
Carburetion System	Carburetor, KEIHIN PWK38S	←
Starting System	Primary kick	←
Ignition System	CDI	←
Ignition Timing	14° BTDC @7 740 r/min (rpm)	←
Spark Plug	NGK BR8EIX	←
Port Timing:		
Inlet:		
Open	Full open	←
Close	-	-
Scavenging:		
Open	57.6° BBDC	59.3° BBDC
Close	57.6° ABDC	59.3° ABDC
Exhaust:		
Open	78.1° BBDC (low speed), 91.4° BBDC (high speed)	78.4° BBDC (low speed), 92.2° BBDC (high speed)
Close	78.1° ABDC (low speed), 91.4° ABDC (high speed)	78.4° ABDC (low speed), 92.2° ABDC (high speed)
Lubrication System (Gasoline: Oil)	Petrol mix (32 : 1)	←

General Specifications

Items	KX250-M1	KX250-M2
Drive Train		
Primary Reduction System:		
Type	Gear	←
Reduction ratio	3.000 (63/21)	←
Clutch Type	Wet, multi disc	←
Transmission:		
Type	5 speed, constant mesh, return shift	←
Gear Ratios:		
1st	1.800 (27/15)	←
2nd	1.437 (23/16)	←
3rd	1.176 (20/17)	←
4th	1.000 (21/21)	←
5th	0.869 (20/23)	←
Final Drive System		
Type	Chain drive	←
Reduction Ratio	3.769 (49/13)	←
Overall Drive Ratio	9.832 @Top gear	←
Transmission Oil:		
Type	API SE, SF, or SG	←
	API SH or SJ with JASO MA	←
Viscosity	SAE 10W-40	←
Capacity	0.85 L (0.90 US qt)	←
Frame		
Type	Tubular, semi-double cradle	←
Steering Angle	45° to either side	42° to either side
Caster (rake angle)	27°	←
Trail	97 mm (3.8 in.)	112 mm (4.4 in.)
Front Tire:		
Size	80/100-21 51M	←
Make/Type	BRIDGESTONE, Tube type	←
	(EUR) DUNLOP, Tube type	←
Rear Tire:		
Size	110/90-19 62M	←
Make/Type	BRIDGESTONE, Tube type	←
	(EUR) DUNLOP, Tube type	←
Front Suspension:		
Type	Telescopic fork (up side down)	←
Wheel Travel	300 mm (11.8 in.)	←
Rear Suspension:		
Type	Swingarm (Uni-trak)	Swingarm (New Uni-trak)
Wheel Travel	310 mm (12.2 in.)	←
Brake Type:		
Front and Rear	Single disc	←

General Specifications

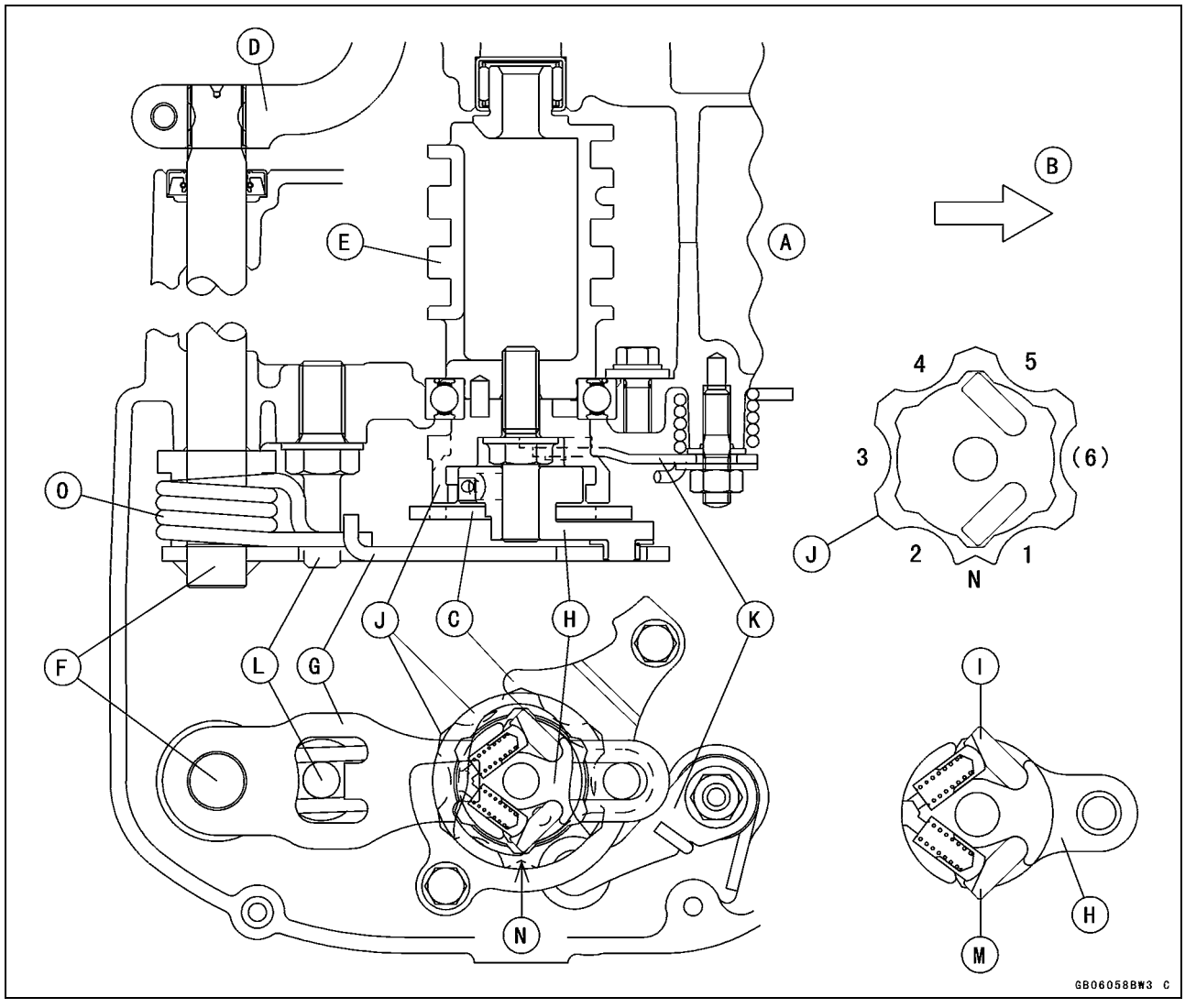
Items	KX250-M1	KX250-M2
Effective Disc Diameter		
Front	220 mm (8.7 in.)	225 mm (8.9 in.)
Rear	200 mm (7.9 in.)	215 mm (8.5 in.)

Specifications are subject to change without notice, and may not apply to every country.
(EUR): Europe Model

Technical Information

Ratchet-Type Shift Mechanism (KX250M, KX125M)

○The shift mechanism of the KX250M (5-speed) is shown in the following figure.
○This mechanism is stronger and simpler than the usual slide type and enables light and positive shifting. When the shift pedal [D] is applied, its turning force is transmitted almost directly to the shift drum [E].
○The mechanism has shorter length between the shift drum and the drive shaft, compared with the previous model (for example, from 67 mm to 43.2 mm for KX125).
○The shift force is transmitted as follows:
Shift Pedal → Shift Shaft [F] → Shift Mechanism Arm [G] → Ratchet [H] → Pawls [I], [M] in Ratchet → Shift Drum Cam [J] → Shift Forks → Gears

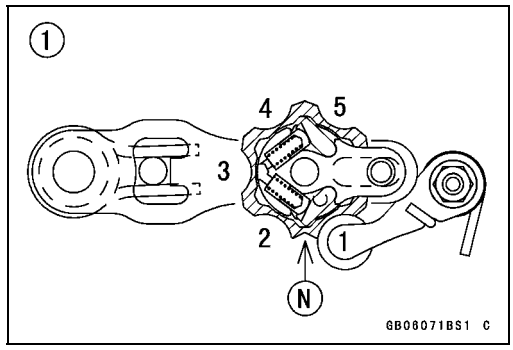


A. Top View
B. Front
C. Ratchet Plate
D. Shift Pedal
E. Shift Drum
F. Top View
G. Shift Mechanism Arm
H. Ratchet
I. Upper Pawls
J. Shift Drum Cam
K. Gear Set Lever
L. Return Spring Pin
M. Lower Pawl
N. Neutral Detent
O. Return Spring

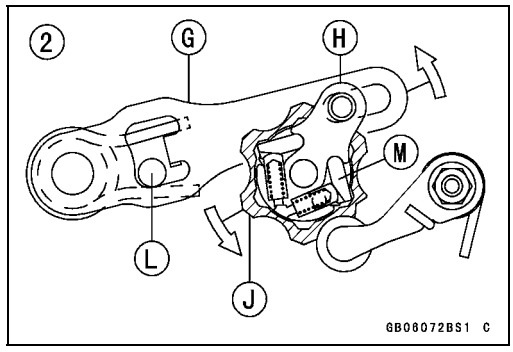
Technical Information

○This mechanism operates as follows:

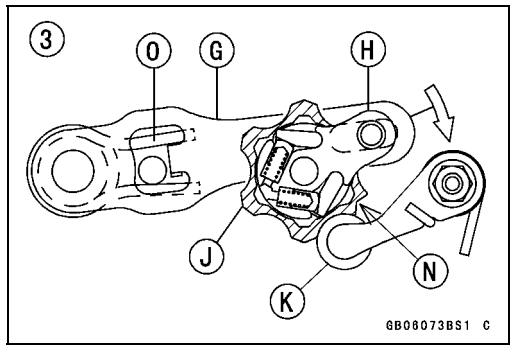
1. Suppose the 1st gear position is set as shown.
   Neutral Detent [N]



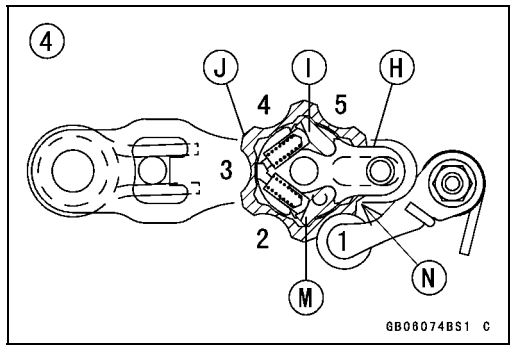
2. Shift Up (for example: shift from 1st to 2nd)
   (→) : transmitting of shift force
   The shift pedal is lifted. → The arm [G] turns counter-clockwise until it stops at pin [L]. → ratchet [H] → lower pawl [M] → shift drum cam [J] → shift drum → The gear is shifted in 2nd position.



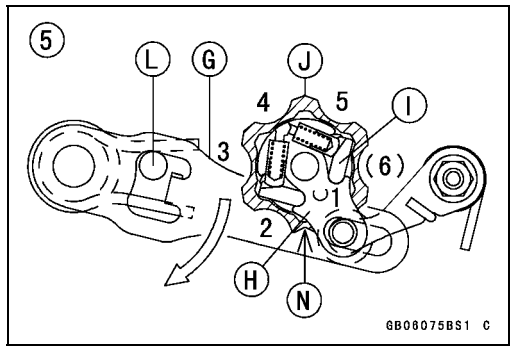
3. Ratchet Returns.
   The arm [G] returns by force of spring [O]. → The ratchet [H] disengages to be free by itself. → The set lever [K] holds the shift drum cam [J]. → The ratchet [H] returns (turns clockwise).



4. The 2nd Gear Position settles.
   The upper and lower pawls [I], [M] catch the next teeth inside the shift drum cam [J] → The ratchet [H] settles in position. → The 2nd gear position settles.



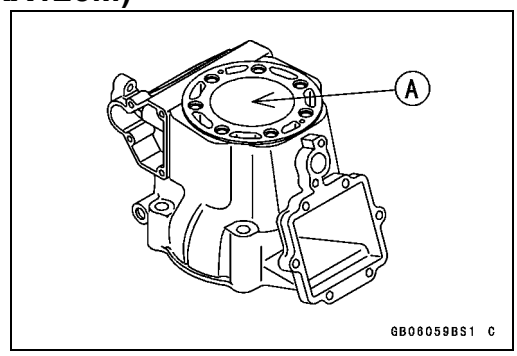
5. Shift Down (for example: shift from 2nd to 1st)
   The shift pedal is depressed. → The arm [G] turns clock-wise until it stops at the pin [L]. → ratchet [H] → upper pawl [I] → shift drum cam [J] → shift drum → The gear is shifted into 1st position. → (continues to operate in the same way as Shift Up)



Technical Information

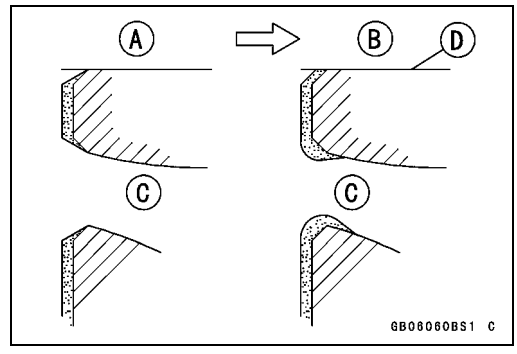
Chrome Composite Plating Cylinder (KX250M, KX125M)

○This new cylinder bore [A] has Kawasaki's composite cylinder plating, which is used for the first time on two stroke engines. The composite plating includes a nickel-phosphorous alloy, inorganic materials like ceramic, silicone carbide and some organic materials.

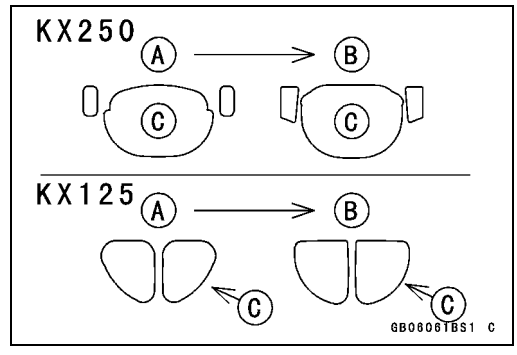


○The treatment improves heat transfer of the cylinder for consistent power output, allows closer piston-to-cylinder clearances for more horsepower.
○The treatment is porous, so it holds lubrication well, and hard, so it resists abrasion and seizure.
○This plating gets on well even the chamfered edge of the cylinder top or port.

○This improves the surface of the chamber at the top of the cylinder, preventing hot spots, resultant pre-ignition and other abnormal combustion in the chamber.
Previous Cylinder [A]
New Cylinder [B]
Exhaust Port [C]
Cylinder Top [D]



○This enables the top end of the exhaust port from round to straight in order to make gas flow smooth and improve mid-high performance and extending piston ring life.
Previous Cylinder [A]
New Cylinder [B]
Exhaust Port [C]



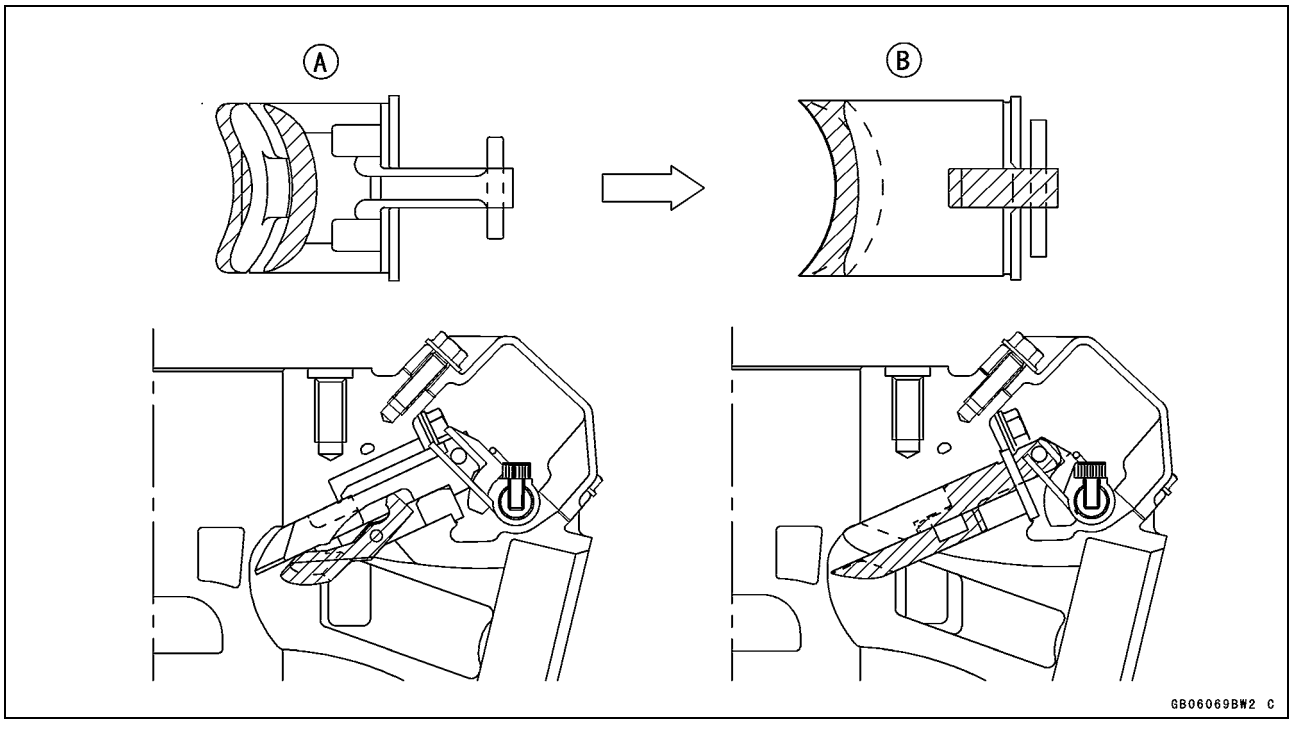
Technical Information

KIPS (Kawasaki Integrated Power Valve System, KX250M, KX125M)

○KIPS varies the exhaust port height to broaden the useful rpm range for low end and mid-range without sacrificing the top end power (see '95 KDX200H Service Manual for basic information about KIPS).
○KIPS is 2-stage-3-way type: the main exhaust port is opened earlier than the sub-exhaust ports (2-stage) and they are opened differently in low, middle and high rpm (3-way).

(In low rpm)
resonator: open to fully, sub-exhaust ports and main exhaust port: close
(In middle rpm)
resonator: close, main exhaust port: open to fully, sub-exhaust ports open to halfway
(In high rpm)
resonator: close, main exhaust port and sub-exhaust ports open fully.
○The KIPS valve is now made of aluminum instead of steel to save weight.
○The KIPS main valve holder shape is modified to match the straightened exhaust port, and timing for the main and sub-valves is changed to deliver more power in the low to mid-range.
○The main valve end is changed from thick end to thin end, reducing exhaust pressure on the valve and making valve operation smooth.

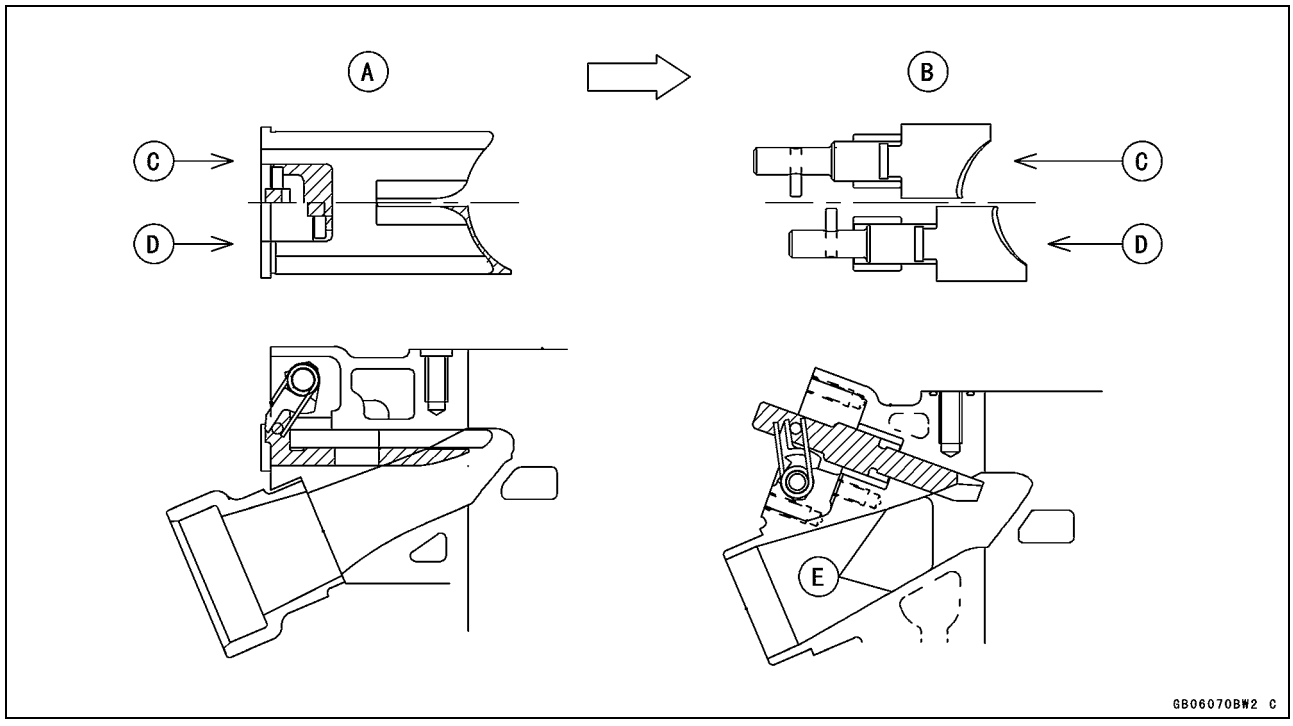
(KX250M)



A. Previous KIPS
B. New KIPS

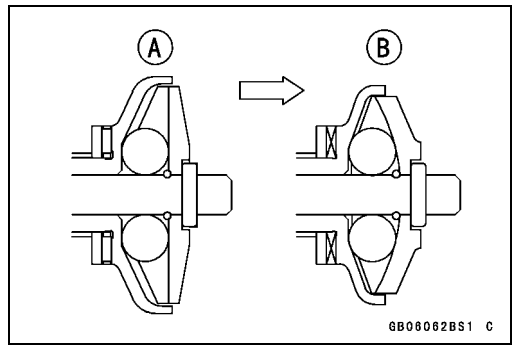
Technical Information

(KX125M)



A. Previous KIPS
B. New Model
C. Full Opened Position
D. Low Speed Position
E. Straightened Exhaust Passage

○The KIPS governor is modified so that the exhaust valves operate over a wider rpm range to improve low and mid -range power and smooth the power delivery.
○The KX250's governor inside is changed from straight to concave in order to move the balls smoothly.
Previous Governor [A]
New Governor [B]

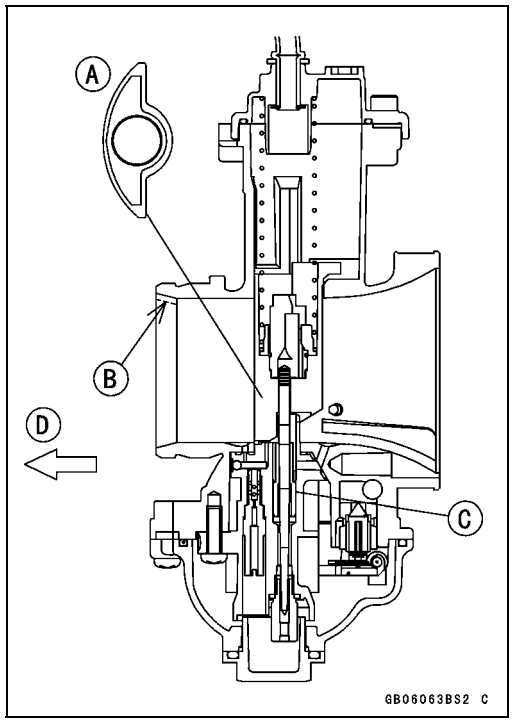


Carburetor (KX250M)

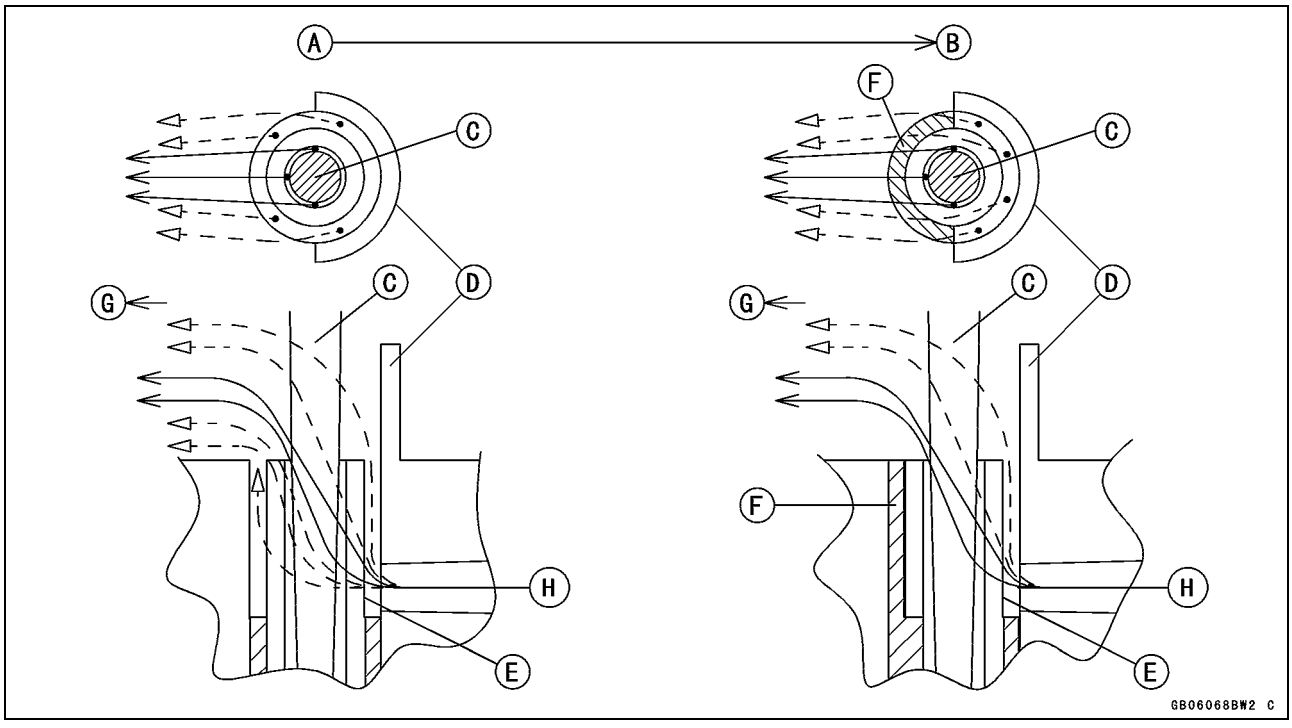
○The 38.7 mm (1.524 in.) Keihin PWK 38S carburetor helps boost mid-range and top-end power.

Technical Information

○The crescent shaped slide [A] enables the needle to sit closer to the intake ports for quicker throttle response.
○Large bores in the front and back of the carburetor and a smoother shape (38 to 40 mm-tapered bore [B]) boost mixture flow for more mid-range and top-end power.
○The semi air bleed needle jet [C] improves throttle response in the very low and low range.
Front [D]



○The air baffle forms vacuum, the stop narrows the outlet and speeds up outflow from the needle jet, improving atomization.



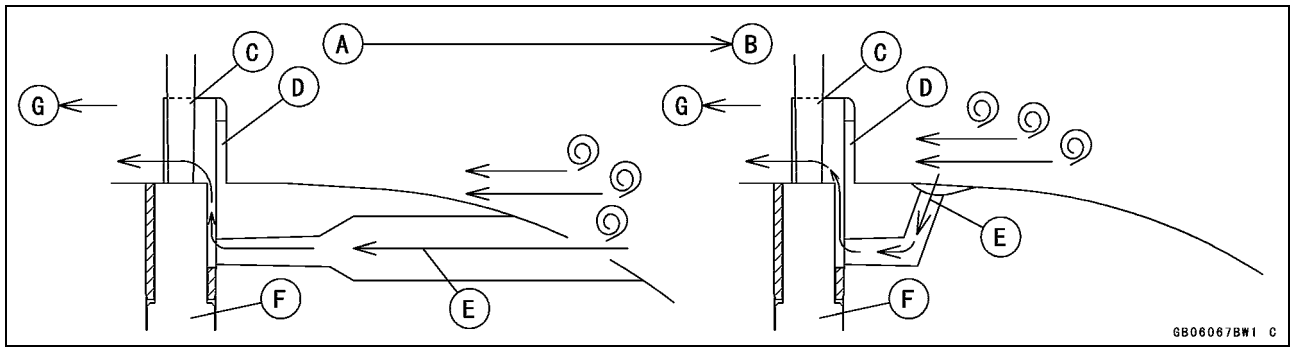
←—: Fuel Droplets
← - -: Fuel Mist

A. Previous Carburetor
B. New Carburetor
C. Jet Needle
D. Air Baffle
E. Needle Jet
F. Stop
G. Engine Intake

Technical Information

H. Main Air

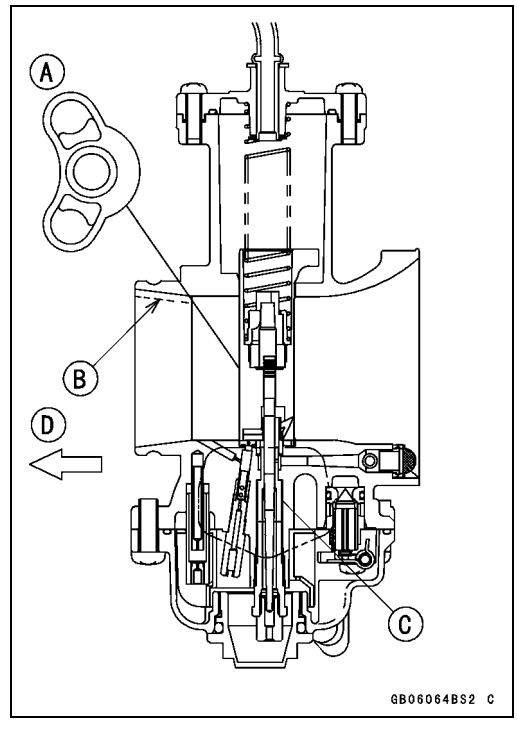
○The new main air inlet tends to take in static pressure and to exclude dynamic pressure and vortexes, making the main air flow stable.



A. Previous Carburetor
B. New Carburetor
C. Jet Needle
D. Air Baffle
E. Main Air
F. Needle Jet
G. Engine Intake

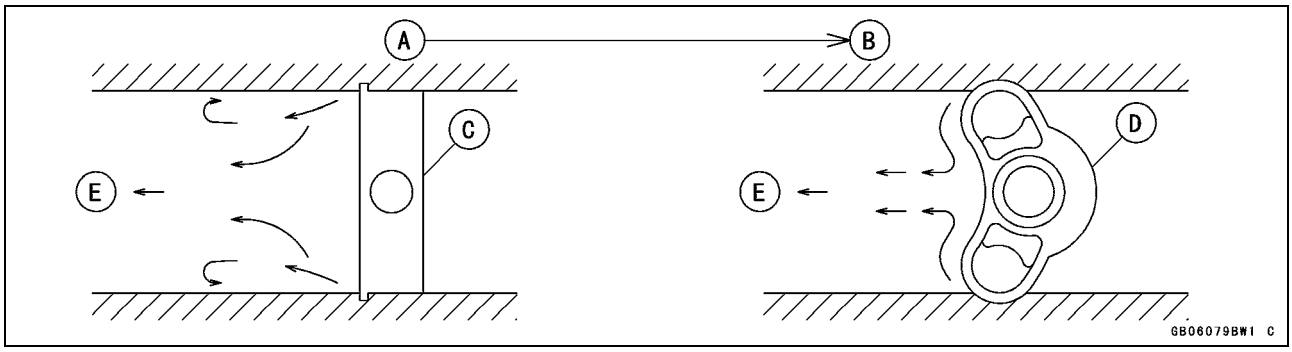
Carburetor (KX125M)

○The 38 mm (1.496 in.) Mikuni TMX 38-27 carburetor helps boost mid-range and top-end power.
○The arched slide [A] improves throttle response in the very low and low ranges.
○Large bores in the front and back of the carburetor and a smoother shape (38 to 40 mm-tapered bore [B]) boost mixture flow for more mid-range and top-end power.
○The semi air bleed needle jet [C] improves throttle response in the low range and provides proper mixture from the low to top range.
Front [D]



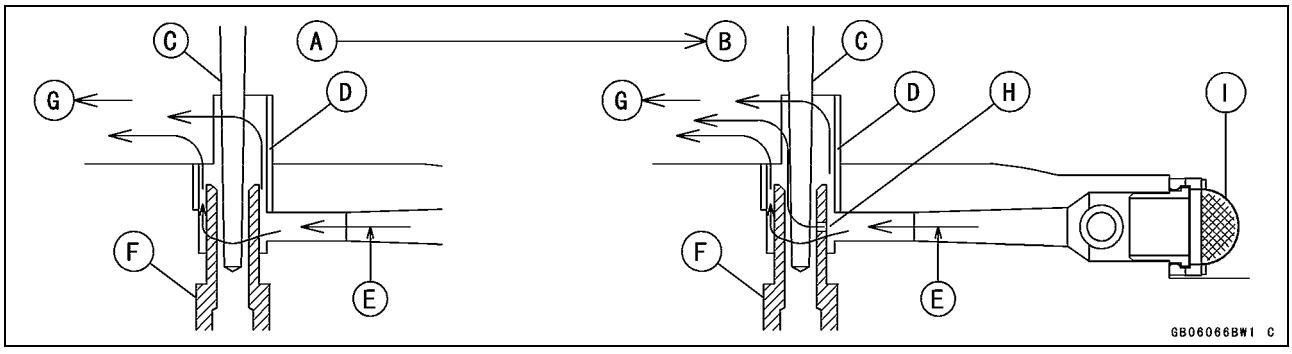
○In low range, fuel drops in the fuel/air mixture is larger and tends to stick to the carburetor wall. The arched slide deflects fuel/air mixture flow from the wall to the middle of the carburetor for better atomization and better throttle response.

Technical Information



A. Previous Carburetor
B. New Carburetor
C. Flat Slide (piston valve)
D. Arched Shape Slide (piston valve)
E. Engine Intake

○The semi air bleed hole is positioned at the side of the needle jet, where fuel mixes with air well (due to enough fuel and faster air flow than in main bore), resulting in better atomizing. The air screen suppresses dynamic pressure around the main air inlet.



A. Previous Carburetor
B. New Carburetor
C. Jet Needle
D. Air Baffle
E. Main Air
F. Needle Jet
G. Engine Intake
H. Semi Air Bleed Hole
I. Air Screen

Unit Conversion Table

Prefixes for Units:

Prefix	Symbol	Power
mega	M	× 1 000 000
kilo	k	× 1 000
centi	c	× 0.01
milli	m	× 0.001
micro	**μ**	× 0.000001

Units of Mass:

kg	×	2.205	=	lb
g	×	0.03527	=	oz

Units of Volume:

L	×	0.2642	=	gal (US)
L	×	0.2200	=	gal (imp)
L	×	1.057	=	qt (US)
L	×	0.8799	=	qt (imp)
L	×	2.113	=	pint (US)
L	×	1.816	=	pint (imp)
mL	×	0.03381	=	oz (US)
mL	×	0.02816	=	oz (imp)
mL	×	0.06102	=	cu in

Units of Force:

N	×	0.1020	=	kgf
N	×	0.2248	=	lb
kgf	×	9.807	=	N
kgf	×	2.205	=	lb

Units of Length:

km	×	0.6214	=	mile
m	×	3.281	=	ft
mm	×	0.03937	=	in

Units of Torque:

N·m	×	0.1020	=	kgf·m
N·m	×	0.7376	=	ft·lb
N·m	×	8.851	=	in·lb
kgf·m	×	9.807	=	N·m
kgf·m	×	7.233	=	ft·lb
kgf·m	×	86.80	=	in·lb

Units of Pressure:

kPa	×	0.01020	=	kgf/cm²
kPa	×	0.1450	=	psi
kPa	×	0.7501	=	cm Hg
kgf/cm²	×	98.07	=	kPa
kgf/cm²	×	14.22	=	psi
cm Hg	×	1.333	=	kPa

Units of Speed:

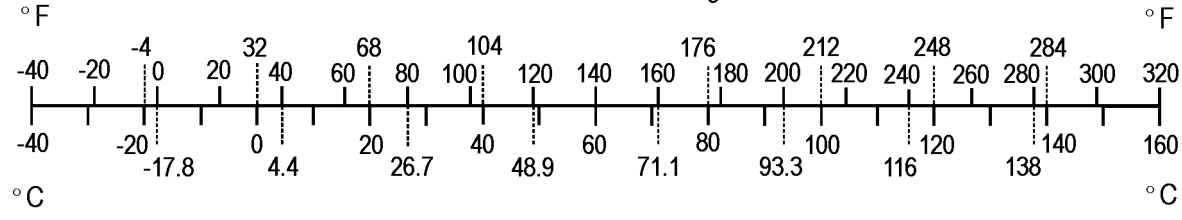
km/h	×	0.6214	=	mph

Units of Power:

kW	×	1.360	=	PS
kW	×	1.341	=	HP
PS	×	0.7355	=	kW
PS	×	0.9863	=	HP

Units of Temperature:

$$\frac{9(^\circ C + 40)}{5} - 40 = {}^\circ F \qquad \frac{5(^\circ F + 40)}{9} - 40 = {}^\circ C$$



Periodic Maintenance

Table of Contents

Periodic Maintenance Chart 2-3
Torque and Locking Agent 2-5
Specifications 2-9
Special Tools 2-12
Periodic Maintenance Procedures 2-13
  Fuel System 2-13
    Fuel Hose and Connection Check 2-13
    Throttle Grip Free Play Inspection 2-13
    Throttle Grip Free Play Adjustment 2-13
    Idle Speed Inspection 2-14
    Idle Speed Adjustment 2-14
    Air Cleaner Element Cleaning and Inspection 2-14
    Fuel Tank and Tap Cleaning 2-15
    Fuel Tap Inspection 2-16
    Reed Valve Inspection 2-16
  Cooling System 2-16
    Coolant Level Inspection 2-17
    Coolant Deterioration Inspection 2-17
    Coolant Draining 2-17
    Coolant Filling 2-18
    Air Bleeding 2-19
    Cooling Hoses and Connections Inspection 2-19
  Engine Top End 2-19
    Cylinder Head Warp Inspection 2-19
    Cylinder Wear Inspection 2-20
    Piston Diameter Measurement 2-21
    Piston/Cylinder Clearance 2-21
    Piston Ring, Piston Ring Groove Inspection 2-22
    Piston Ring End Gap Inspection 2-23
    Piston, Piston Pin, Connecting Rod Wear Inspection 2-24
    Exhaust Valve Clean and Inspect 2-25
    Exhaust System 2-25
    Silencer Packing Change 2-25
  Engine Right Side 2-25
    Clutch Lever Free Play Check 2-26
    Clutch Lever Free Play Adjustment 2-26
    Friction and Steel Plates Wear, Damage Inspection 2-26
    Friction and Steel Plate Warp Inspection 2-27
  Engine Bottom End/Transmission 2-27
    Transmission Oil Level Inspection 2-28
    Transmission Oil Change 2-28
  Wheel/Tires 2-29
    Spoke Tightness Inspection 2-29
    Rim Runout Inspection 2-29
    Wheel Bearing Inspection 2-29
  Final Drive 2-30

Drive Chain Slack Inspection 2-30
Drive Chain Slack Adjustment 2-30
Drive Chain Wear Inspection 2-31
Drive Chain Lubrication 2-32
Sprocket Wear Inspection 2-32
Rear Sprocket Warp Inspection 2-33
Brakes 2-33
Brake Lever Play Adjustment 2-33
Brake Fluid Level Inspection 2-34
Brake Fluid Change 2-35
Brake Pad Wear Inspection 2-36
Brake Master Cylinder Cup and Dust Seal Replacement 2-36
Caliper Piston Seal and Dust Seal Replacement 2-37
Brake Hose and Connection Check 2-37
Suspension 2-37
Front Fork Oil Leak Inspection 2-37
Front Fork Oil Change/Oil Level Adjustment (each fork leg) 2-38
Rear Shock Absorber Oil Change 2-40
Uni-Trak Linkage Inspection 2-40
Chain Guide Wear Inspection 2-41
Chain Slipper Wear Inspection 2-41
Steering 2-41
Steering Inspection 2-41
Steering Adjustment 2-41
Stem Bearing Lubrication 2-43
Electrical System 2-43
Spark Plug Cleaning and Inspection 2-43
Spark Plug Gap Inspection 2-43
General Lubrication 2-44
Lubrication 2-44
Nut, Bolt, and Fastener Tightness 2-46
Tightness Inspection 2-46

Periodic Maintenance Chart

The maintenance must be done in accordance with this chart to keep the motorcycle in good running condition.

	FREQUENCY / OPERATION	After each race or 2.5 hr	Every 3 races or 7.5 hr	Every 5 races or 12.5 hr	Every 10 races or 25 hr	As required	See Page
	Spark plug - clean, gap †	●	R				2-43
	Clutch - adjust	●					2-26
E	Clutch and friction plates - inspect †		●	R			2-26
	Throttle cable - adjust	●					2-13
	Air cleaner element - clean	●					2-14
N	Air cleaner element - replace	If damaged					2-14
	Carburetor - inspect and adjust	●					2-14
	Transmission oil - change		●				2-28
G	Piston and piston ring - clean and inspect†		●	R			2-20
	Cylinder head, cylinder - inspect		●				2-19
	Small end bearing - inspect †		●		R		2-24
I	Reed valve - inspect †	●					2-16
	Exhaust valve - clean and inspect	●					2-25
	Exhaust pipe O-ring - replace		●				2-25
N	Silencer - clean and inspect†	●					2-25
	Silencer packing - change		●				2-25
	Kick pedal and shift pedal - clean	●					-
E	Engine sprocket - inspect †	●					2-32
	Coolant - check †	●				R	2-16
	Cooling hoses and connections - inspect †	●					2-19
	Brake adjustment - inspect †	●					2-33
C	Brake pad wear - inspect †			●			2-36
	Brake fluid level - inspect †		●				2-34
H	Brake fluid - change	Every 2 years					2-35
A	Brake master cylinder cup and dust seal - replace	Every 2 years					2-36
	Brake caliper piston seal and dust seal - replace	Every 2 years					2-37
S	Brake hoses and pipe - replace	Every 4 years					2-37
	Brake hoses, connections - inspect †	●					2-37
S	Spoke tightness and rim runout - inspect †	●					2-29
	Wheel bearing - inspect †				●		2-29
I	Drive chain - adjust	●					2-30
	Drive chain - lubricate	●					2-32
S	Drive chain wear - inspect †			●			2-31
	Chain slipper and guide - replace	If damaged					2-41
	Rear sprocket - inspect †			●			2-32

2-4 PERIODIC MAINTENANCE

Periodic Maintenance Chart

	FREQUENCY / OPERATION	After each race or 2.5 hr	Every 3 races or 7.5 hr	Every 5 races or 12.5 hr	Every 10 races or 25 hr	As required	See Page
	Front fork - inspect and clean	●					2-37
	Front fork oil - change	1st time after 2 races, then every 5 races					2-38
	Rear shock oil - replace	1st time after 2 races, then every 5 races					2-40
C	Fuel system - clean	●					2-15
H	Fuel hose - replace	Every 4 years					2-13
A	Fuel hose, connections - inspect †	●					2-13
S	Steering play - inspect †	●					2-41
S	Steering stem bearing - grease			●			2-43
I	Swing arm and Uni-Trak linkage pivots - grease			●			2-40
S	Swing arm and Uni-Trak linkage pivots - inspect †			●			2-40
	Nuts, bolts, fasteners - inspect †	●					2-46
	General lubrication - perform	●					2-44

†: Replace, add, adjust, clean or torque if necessary.
R: Replace

Torque and Locking Agent

Tighten all bolts and nuts to the proper torque using an accurate torque wrench. If insufficiently tightened, a bolt or nut may become damaged, strip an internal thread, or break and then fall out. The following table lists the tightening toque for the major bolts and nuts, and the parts requiring use of a non-permanent locking agent or liquid gasket.

When checking the tightening toque of the bolts and nuts, first loosen the bolt or nut by half a turn and then tighten to specified torque.

Letters used in the "Remarks" column mean:

L : Apply a non-permanent locking agent to the threads.

LG : Apply liquid gasket to the threads.

S : Tighten the fasteners following the specified sequence.

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Fuel System				
Carburetor Top Cover Screws (KX125)	3.0	0.3	26 in·lb	
Carburetor Top Cover Allen Bolts (KX250)	3.9	0.4	35 in·lb	
Throttle Sensor Bolt (KX250)	2.0	0.2	17 in·lb	
Rear Frame Mounting Bolts	34	3.5	25	
Carburetor Holding Clamp Screws	1.4	0.14	12 in·lb	
Carburetor Holder Mounting Bolts	8.8	0.9	78 in·lb	
Reed Valve Screws	1.0	0.1	8.8 in·lb	
Fuel Tap Plate Mounting Screws	0.8	0.08	7 in·lb	
Cooling System				
Cooling Hose Elbow Fitting Bolts: Cylinder (KX250)	8.8	0.9	78 in·lb	
Water Pump Cover Bolts	8.8	0.9	78 in·lb	
Water Pump Impeller Bolt	6.9	0.7	61 in·lb	
Cooling Hose Clamp Screws	1.5	0.15	13 in·lb	
Coolant Drain Plug (Water Pump Cover)	8.8	0.9	78 in·lb	
Coolant Drain Plug (Cylinder)(KX250)	8.8	0.9	78 in·lb	
Water Pump Cover Fitting Bolts (KX250)	5.9	0.6	52 in·lb	
Engine Top End				
Cylinder Head Nuts	25	2.5	18	
Cylinder Head Cover Stud	-	-	-	L (Planted Side)
Spark Plug	26.5	2.75	19.5	
Coolant Drain Plug: Cylinder (KX250)	8.8	0.9	78 in·lb	
Cylinder Nuts				
KX125	25	2.5	18.0	
KX250	34	3.5	25	
Engine Mounting Bracket Nuts:				
Engine Side 10 mm (KX125/250–M1)	44	4.5	33	
Engine Side 10 mm (KX125/250–M2~)	49	5.0	36	
Frame Side 8 m	29	3.0	22	
KIPS Cover Bolts:				
KX125-M1	4.9	0.5	43 in·lb	
KX125-M2~	8.8	0.9	78 in·lb	
KX250	2.9	0.3	26 in·lb	
Main Valve Cover Bolts	5.9	0.6	52 in·lb	

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Main Lever Mounting Allen Bolt	3.9	0.4	35 in·lb	L
Governor Shaft Lever Mounting Bolt (KX125)	6.9	0.7s	61 in·lb	
Exhaust Valve Retaining Bolts (KX125)	5.9	0.6	52 in·lb	
Main Shaft Stopper Pin Plug (KX125)	0.8	0.08	6.9 in·lb	
Main Valve Retaining Bolts (KX250)	5.9	0.6	52 in·lb	
Operating Rod Retaining Screw KX250	5.4	0.55	48 in·lb	
Operating Rod Left Side Plug (KX250)	22	2.2	16	
Main Valve Rod Cover Screw (KX250)	5.9	0.6	52 in·lb	
Silencer Inner Pipe Bolts	8.8	0.9	78 in·lb	L
Silencer Pipe Mounting Bolts	8.8	0.9	78 in·lb	L
Engine Right Side				
Oil Filler Cap	1.5	0.15	13 in·lb	
External Shift Mechanism Return Spring Pin (KX250)	42	4.3	31	L
Clutch Spring Bolts	8.8	0.9	78 in·lb	
Clutch Hub Nut	98	10	72	
Exhaust Valve Advancer				
Lever Mounting Allen Bolts	3.9	0.4	35 in·lb	L
Governor Shaft Lever Positioning Plug	0.6	0.06	5 in·lb	
Gear Set Lever Nut	8.8	0.9	78 in·lb	
Gear Set Lever Pivot Stud	-	-	-	L (Planted Side)
Ratchet Plate Mounting Bolts	8.8	0.9	78 in·lb	
Water Pump Impeller Bolt	6.9	0.7	61 in·lb	
Kick Ratchet Guide Bolt	8.8	0.9	78 in·lb	
Kick Pedal Bolt:				
KX125	12	1.2	8.7	
KX250	25	2.5	18	
Primary Gear Nut (KX125)	59	6.0	43	
Clutch Cover Bolts	8.8	0.9	78 in·lb	
Right Engine Cover Bolts	8.8	0.9	78 in·lb	
Engine Removal/Installation				
Engine Mounting Nuts	44	4.5	33	
Engine Mounting Bracket Nuts:				
Engine Side 10 mm (KX125/250-M1)	44	4.5	33	
Engine Side 10 mm KX125/250-M2~)	49	5.0	36	
Frame Side 8 mm	29	3.0	22	
Swing Arm Pivot Shaft Nut	98	10.0	72	
Engine Bottom End/Transmission				
Cylinder Stud	-	-	-	L (Planted Side)
Crankcase Bolts	8.8	0.9	78 in·lb	

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Crankshaft Web Cover Bolts				
KX125	6.9	0.7	61 in·lb	L
KX250	11	1.1	8	L
Transmission Oil Drain Plug	20	2.0	14.5	
Output Shaft Bearing Retaining Screws	5.4	0.55	48 in·lb	L
Drive Shaft Bearing Retaining Bolts (KX250)	8.8	0.9	78 in·lb	
Shift Drum Bearing Retaining Screws (KX125–M1)	6.4	0.65	56 in·lb	
Shift Drum Bearing Retaining Bolts (KX250/KX125-M2~)	8.8	0.9	78 in·lb	
Shift Drum Operating Cam Bolt	24	2.4	17	L
Flywheel Bolt (KX125)	22	2.2	16	
Flywheel Nut (KX250)	78	8.0	58	
Wheels/Tires				
Front Axle	78	8.0	58	
Front Axle Clamp Bolts	20	2.0	14.5	
Rear Axle Nut	110	11.0	80	
Spoke Nipple	Not less than 2.2	Not less than 0.22	Not less than 19 in·lb	
Final Drive				
Rear Axle Nut	110	11.0	80	
Rear Sprocket Nuts	34	3.5	25	
Engine Sprocket Cover Bolts	4.9	0.5	43 in·lb	
Brakes				
Caliper Mounting Bolts (Front)	25	2.5	18	
Brake Hose Banjo Bolts	25	2.5	18	
Front Master Cylinder Clamp Bolts	8.8	0.9	78 in·lb	S
Rear Master Cylinder Mounting Bolts	9.8	1.0	87 in·lb	
Rear Master Cylinder Push Rod Locknut	18	1.8	13.0	
Brake Disc Mounting Bolts	9.8	1.0	87 in·lb	L
Front				
Rear	23	2.3	16.6	L
Caliper Bleed Valves (Front, Rear)	7.8	0.8	69 in·lb	
Caliper Holder Bolt	27	2.8	20	
Brake Pad Bolt	18	1.8	13	
Rear Brake Pad Bolt Plug	2.5	0.25	22 in·lb	
Brake Pedal Mounting Bolt	25	2.5	18	
Suspension				
Front Fork Clamp Bolts (Upper, Lower)	20	2.0	14.5	
Front Fork Cylinder Valve Assembly	54	5.5	40	L
Front Fork Top Plug	29	3.0	22	
Push Rod Nut	28	2.85	20.6	
Swingarm Pivot Shaft Nut	98	10.0	72	

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Rear Shock Absorber Mounting Nuts:				
Upper	39	4.0	29	
Lower	34	3.5	25	
Tie-Rod Mounting Nut (Front, Rear)	83	8.5	61	
Rocker Arm Pivot Nut	83	8.5	61	
Steering				
Steering Stem Head Nut	78	8.0	58	
Steering Stem Locknut	4.9	0.5	43 in·lb	
Handlebar Clamp Bolts	25	2.5	18	
Front Fork Clamp Bolts (Upper, Lower)	20	2.0	14.5	
Electrical System				
Flywheel Bolt	22	2.2	16	
Flywheel Nut	78	8.0	58	
Stator Plate Mounting Screws	4.4	0.45	39 in·lb	
Spark Plug	26.5	2.75	19.5	
Magneto Cover Bolts: (KX125/250–M1)	4.9	0.5	43 in·lb	
Magneto Cover Bolts: KX125/250-M2~)	3.9	0.4	35 in·lb	

Basic Torque for General Fasteners

Threads dia. (mm)	Torque		
	N·m	kgf·m	ft·lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in·lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in·lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Specifications

Item	Standard	Service Limit
Fuel System		
Throttle Grip Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	– – –
Air Cleaner Element Oil	High quality foam air filter oil	– – –
Read Valve Warp		0.5 mm (0.020 in.)
Cooling System		– – –
Coolant:		
Type (recommended)	Permanent type antifreeze	
Color	Green	
Mixed Ratio	Soft water 50% and coolant 50%	
Freezing Point	-35°C (-31°F)	
Total Amount:		
KX125	0.97 L (1.02 US qt)	
KX250	1.20 L (1.27 US qt)	
Engine Top End		
Cylinder Head Warp	– – –	0.03 mm (0.0012 in.)
Cylinder, Piston (KX125):		
Cylinder Inside Diameter (15 mm (0.59 in.) below of the cylinder head)	54.010 ~ 54.025 mm (2.1264 ~ 2.1270 in.)	54.10 mm (2.130 in.)
Piston Diameter	53.955 ~ 53.970 mm (2.1242 ~ 2.1480 in.)	53.81 mm (2.118 in.)
Piston/Cylinder Clearance	0.040 ~ 0.070 mm (0.0016 ~ 0.0028 in.)	– – –
Piston Ring/Groove clearance	0.015 ~ 0.050 mm (0.0006 ~ 0.0020 in.)	0.15 mm (0.006 in.)
Piston Ring Groove Width	1.01 ~ 1.03 mm (0.0398 ~ 0.0406 in.)	1.11 mm (0.044 in.)
Piston Ring Thickness	0.980 ~ 0.995 mm (0.0386 ~ 0.0392 in.)	0.91 mm (0.036 in.)
Piston Ring End Gap	0.35 ~ 0.55 mm (0.0138 ~ 0.0217 in.)	0.85 mm (0.033 in.)
Piston Pin Diameter	14.995 ~ 15.000 mm (0.5904 ~ 0.5906 in.)	14.96 mm (0.589 in.)
Piston Pin Hole Diameter	15.001 ~ 15.011 mm (0.5906 ~ 0.5910 in.)	15.08 mm (0.594 in.)
Small End Inside Diameter	19.003 ~ 19.014 mm (0.7481 ~ 0.7486 in.)	19.05 mm (0.750 in.)
Cylinder, Piston (KX250):		
Cylinder Inside Diameter (30 mm (1.18 in.) below of the cylinder Head)	66.400 ~ 66.415 mm (2.6142 ~ 2.6148 in.)	66.46 mm (2.617 in.)
Piston Diameter	66.336 ~ 66.351 mm (2.6116 ~ 2.6122 in.)	66.19 mm (2.6059 in.)
Piston/Cylinder Clearance	0.049 ~ 0.079 mm (0.0019 ~ 0.0031 in.)	– – –
Piston Ring/Groove Clearance	0.025 ~ 0.06 mm (0.00098 ~ 0.00236 in.)	0.16 mm (0.006 in.)
Piston Ring Groove Width	1.01 ~ 1.03 mm (0.0398 ~ 0.0406 in.)	1.11 mm (0.044 in.)
Piston Ring Thickness	0.970 ~ 0.985 mm (0.0382 ~ 0.0388 in.)	0.90 mm (0.035 in.)
Piston Ring End Gap	0.25 ~ 0.45 mm (0.0098 ~ 0.0177 in.)	0.75 mm (0.030 in.)
Piston Pin Diameter	17.995 ~ 18.000 mm (0.7085 ~ 0.7087 in.)	17.96 mm (0.707 in.)

Specifications

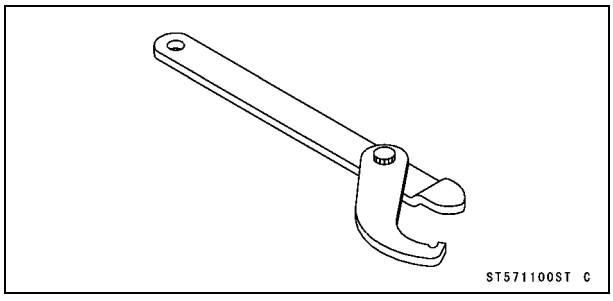
Item	Standard	Service Limit
Piston Pin Hole Diameter	18.001 ~ 18.011 mm (0.7087 ~ 0.7091 in.)	18.08 mm (0.712 in.)
Small End Inside Diameter	22.003 ~ 22.012 mm (0.8663 ~ 0.8666 in.)	22.05 mm (0.868 in.)
Engine Right Side		
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	– – –
Friction Plate Thickness		
KX125	2.72 ~ 2.88 mm (0.107 ~ 0.113 in.)	2.6 mm (0.102 in.)
KX250	2.92 ~ 3.08 mm (0.115 ~ 0.121 in.)	2.8 mm (0.110 in.)
Steel Plate Thickness:		
KX125	1.5 ~ 1.7 mm (0.059 ~ 0.067 in.)	1.4 mm (0.055 in.)
KX250	1.46 ~ 1.74 mm (0.057 ~ 0.069 in.)	1.36 mm (0.054 in.)
Friction Plate Warp	Not more than 0.15 mm (0.006 in.)	0.3 mm (0.012 in.)
Steel Plate Warp	Not more than 0.2 mm (0.008 in.)	0.3 mm (0.012 in.)
Engine Bottom End/Transmission		
Transmission Oil:		
Type	API SE, SF or SG API SH or SJ with JASO MA	
Viscosity	SAE 10W-40	
Capacity:	0.7 L (0.74 US qt)	
KX125		
KX250	0.85 L (0.90 US qt)	– – –
Wheels/Tires		
Rim Runout:		
Axial	Under 1.0 mm (0.04 in.)	2 mm (0.08 in.)
Radial	Under 1.0 mm (0.04 in.)	2 mm (0.08 in.)
Final Drive		
Drive Chain Slack	52 ~ 62 mm (2.05 ~ 2.44 in.)	– – –
Drive Chain 20 Link Length	317.5 ~ 318.2 mm (12.50 ~ 12.53 in.)	323 mm (12.72 in.)
Rear Sprocket Warp	Under 0.4 mm (0.016 in.)	0.5 mm (0.020 in.)
Brakes		
Brake Lever Free Play	Adjustable (to suit rider)	– – –
Brake Fluid:		
Type:		
Front	DOT3 or DOT4	– – –
Rear	DOT4	– – –
Brake Pad Lining Thickness:		
Front	3.8 mm (0.150 in.)	1 mm (0.04 in.)
Rear	6.4 mm (0.252 in.)	1 mm (0.04 in.)
Suspension		
Fork Oil:		
Oil Viscosity	KAYABA 01 or SAE 0W	
Oil Capacity (par unit)		
KX125-M1	652 ±4 mL (22.04 ±0.14 US oz.)	– – –

Specifications

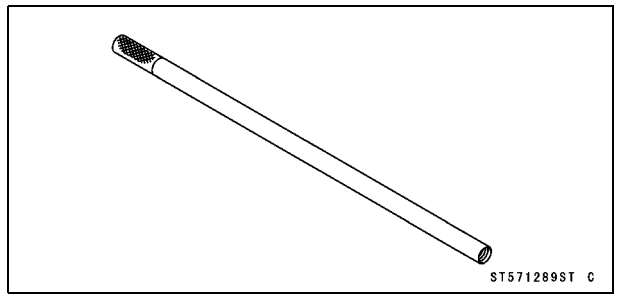
Item	Standard	Service Limit
KX250-M1	664 ±4 mL (22.45 ±0.14 US oz.)	
KX125-M2~	565 ±4 mL (19.10 ±0.14 US oz.)	– – –
KX250-M2~	578 ±4 mL (19.54 ±0.14 US oz.)	
Oil Level (fully compressed, spring removed)		(Adjustable range)
KX125-M1	135 ±2 mm (5.31 ±0.08 in.)	100 ~ 145 mm
KX250-M1	125 ±2 mm (4.92 ±0.08 in.)	(3.94 ~ 5.71 in.)
KX125-M2~	105 ±2 mm (4.13 ±0.08 in.)	70 ~ 120 mm
KX250-M2~	88 ±2 mm (3.46 ±0.08 in.)	(2.76 ~ 4.72 in.)
Electrical System		
Spark Plug Gap	0.7 ~ 0.8 mm (0.028 ~ 0.031 in.)	– – –

Special Tools

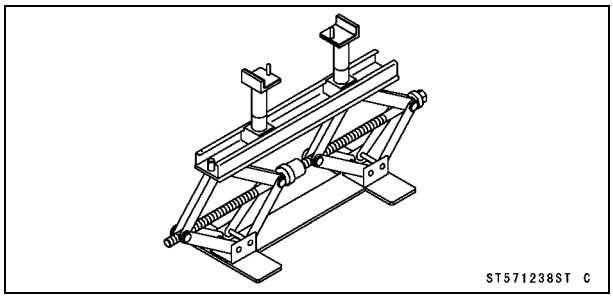
Steering Stem Nut Wrench:
57001-1100



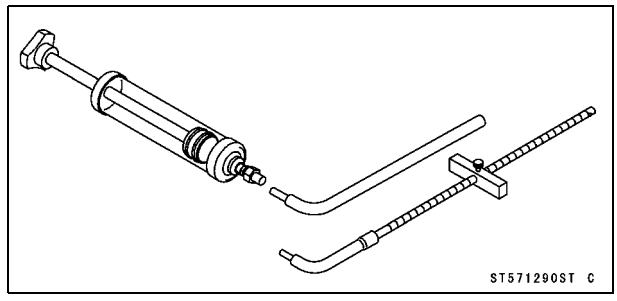
Fork Piston Rod Puller, M12 × 1.25:
57001-1289



Jack:
57001-1238



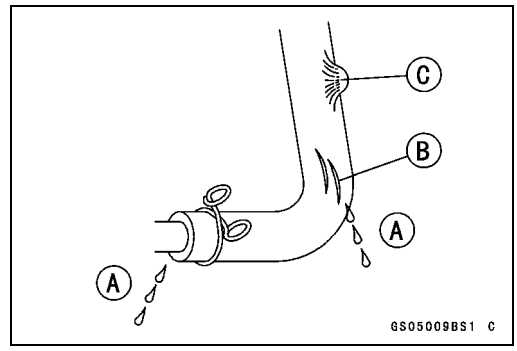
Fork Oil Level Gauge:
57001-1290



Periodic Maintenance Procedures

Fuel System

Fuel Hose and Connection Check



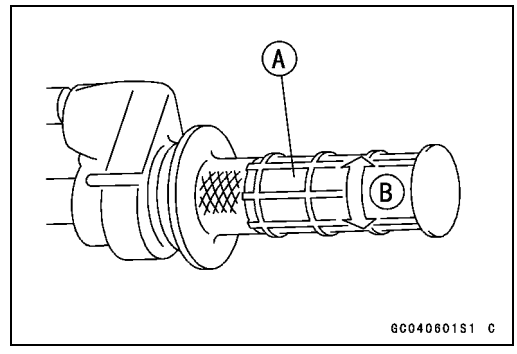
○The fuel hoses are designed to be used throughout the motorcycle's life without any maintenance, however, if the motorcycle is not properly handled, the inside the fuel line can cause fuel to leak [A] or the hose to burst. Remove the fuel tank and check the fuel hose.

★Replace the fuel hose if any fraying, cracks [B] or bulges [C] are noticed.

- Check that the hoses are securely connected and clamps are tightened correctly.
- When installing, route the hoses according to Cable, Wire, and Hose Routing section in the Appendix chapter.
- When installing the fuel hoses, avoid sharp bending, kinking, flattening or twisting, and route the fuel hoses with a minimum of bending so that the fuel flow will not be obstructed.

★Replace the hose if it has been sharply bent or kinked.

Throttle Grip Free Play Inspection



- Check throttle grip free play [B] by lightly turning the throttle grip [A] back and forth.

★If the free play is improper, adjust the throttle cable.

Throttle Grip Free Play
Standard: 2 ~ 3 mm (0.08 ~ 0.12 in.)

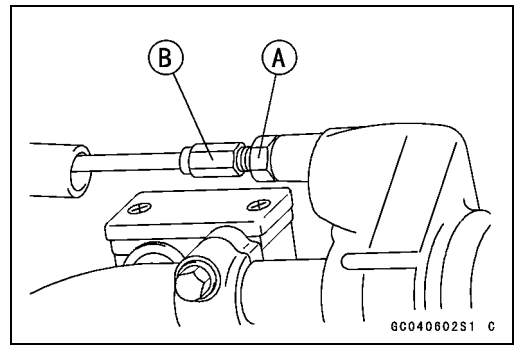
- Check that the throttle grip moves smoothly from full open to close, and the throttle closes quickly and completely in all steering positions by the return spring.

★If the throttle grip does not return properly, check the throttle cable routing, grip free play, and cable damage. Then lubricate the throttle cable.

- Run the engine at the idle speed, and turn the handlebar all the way to the right and left to ensure that the idle speed does not change.

★If the idle speed increase, check the throttle cable free play and the cable routing.

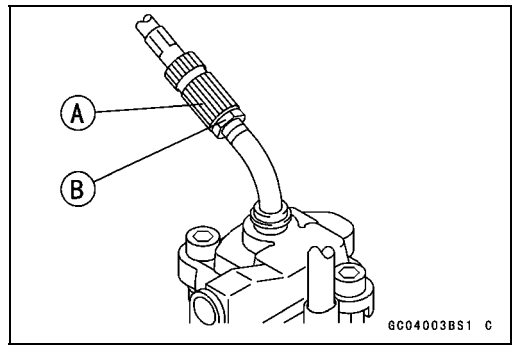
Throttle Grip Free Play Adjustment



- Loosen the locknut [A] at the upper end of the throttle cable.
- Turn the adjuster [B] until the proper amount of throttle grip free play is obtained.
- Tighten the locknut.

Periodic Maintenance Procedures

★If the throttle grip free play cannot be adjusted with the adjuster at the upper end of the throttle cable, use the cable adjuster [A] at the carburetor.
- Free the fuel cut valve connector from the frame.
- Pull the boot off of the carburetor top. Make the necessary free play adjustment at the lower cable adjuster, tighten the locknut [B], and install the boot.
- Turn the handlebar from side to side while idling the engine. If idle speed varies, the throttle cable may be poorly routed or it may be damaged.



⚠ WARNING

Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

Idle Speed Inspection
- Start the engine and warm it up thoroughly.
- With the engine idling, turn the handlebar to both sides.

★If handlebar movement changes the idle speed, the throttle cable may be improperly adjusted or incorrectly routed, or it may be damaged. Be sure to correct any of these conditions before riding (see Cable, Harness, Hose Routing in the Appendix chapter).

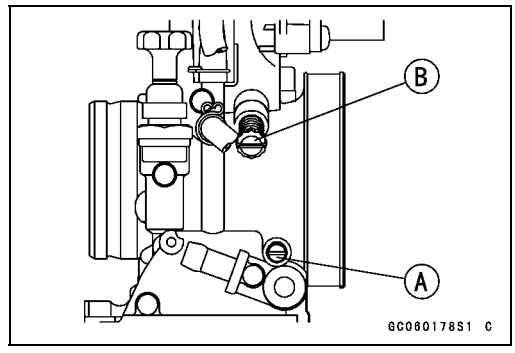
⚠ WARNING

Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

- Check idle speed.

★Adjust it as needed.

Idle Speed Adjustment
- First turn in the air screw [A] until it seats lightly, and back it out the specified number of turns. (see specifications in the Fuel System chapter)
- Start the engine and warm it up thoroughly.
- Turn the idle adjusting screw [B] to obtain desired idle speed. If no idle is preferred, turn out the screw until the engine stops.
- Open and close the throttle a few times to make sure that the idle speed is as desired. Readjust if necessary.



Air Cleaner Element Cleaning and Inspection

NOTE

○*In dusty areas, the element should be cleaned more frequently than recommended interval.*

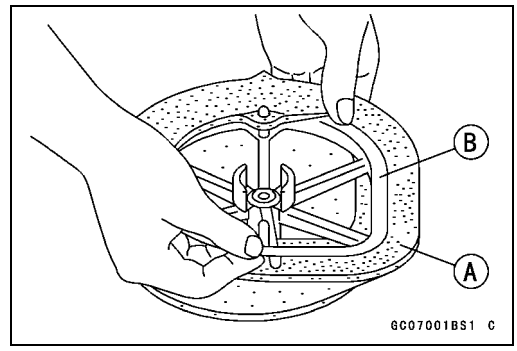
○*After riding through rain or on muddy roads, the element should be cleaned immediately.*

○*Since repeated cleaning opens the pores of the element, replace it with a new one in accordance with the Periodic Maintenance Chart. Also, if there is a break in the element material or any other damage to the element, replace the element with a new one.*

Periodic Maintenance Procedures

⚠ WARNING

Clean the element in a well-ventilated area, and take care that there are no sparks or flame anywhere near the working area; this includes any appliance with a pilot light. Because of the danger of highly flammable liquids, do not use gasoline or a low flash-point solvent to clean the element.



- Remove the air cleaner element, and separate the element [A] from the frame [B].
- Clean the element in a bath of a high-flash point solvent using a soft bristle brush. Squeeze it dry in a clean towel. Do not wring the element or blow it dry; the element can be damaged.
- Check all the parts of the element for visible damage.

★If any of the parts of the element are damaged, replace them.

- After cleaning, saturate the element with a high-quality foam-air-filter oil, squeeze out the excess, then wrap it in a clean rag and squeeze it as dry as possible. Be careful not to tear the sponge filter.
- Assemble the element.
- Remove the towel from the carburetor.
- Install the element.

Fuel Tank and Tap Cleaning

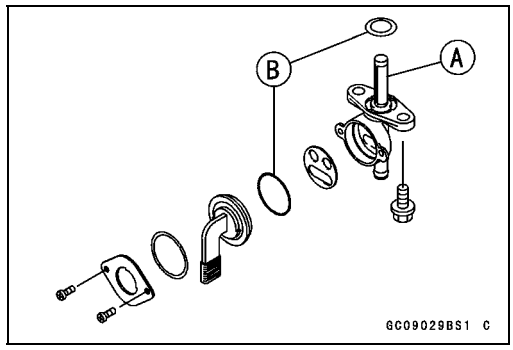
⚠ WARNING

Clean the fuel tank in a well-ventilated area, and take care that there is no sparks or flame anywhere near the working area. Because of the danger of highly flammable liquids, do not use gasoline or low flash-point solvent to clean the tank.

- Remove the fuel tank and drain it.
- Pour some high-flash point solvent into the fuel tank and shake the tank to remove dirt and fuel deposits.
- Pour the solvent out of the tank.
- Remove the fuel tap from the tank by taking out the bolts.
- Clean the fuel tap filter screen in a high-flash point solvent.
- Pour high-flash point solvent through the tap in all lever positions.
- Dry the tank and tap with compressed air.
- Install the tap in the fuel tank.
- Install the fuel tank.

Periodic Maintenance Procedures

Fuel Tap Inspection

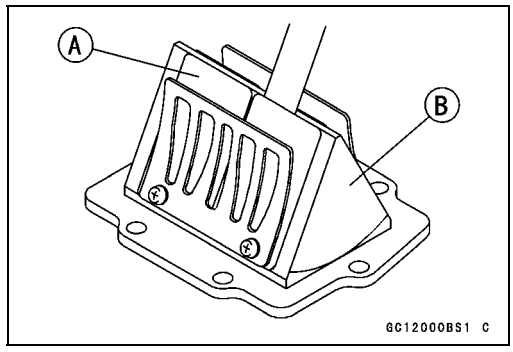


- Remove the fuel tap.
- Check the fuel tap filter screen [A] for any breaks or deterioration.

★If the fuel tap screen have any breaks or is deteriorated, it may allow dirt to reach the carburetor, causing poor running. Replace the fuel tap.

★If the fuel tap leaks, or allows fuel to flow when it is at OFF position, replace the damaged O-ring [B].

Reed Valve Inspection



- Inspect the reeds for cracks, folds, or other visible damage.

★If there is any doubt as to the condition of a reed, replace the reed valve part with a new one.

★If a reed becomes wavy, replace the valve part with a new one even if its warp is less than the service limit.

- Measure the clearance between the reed [A] and holder [B], and check the reed warp as shown.

★If any one of the clearance measurements exceeds the service limit, replace the damaged valve parts with a new one.

Reed Warp
Service Limit: 0.5 mm (0.020 in.)

Cooling System

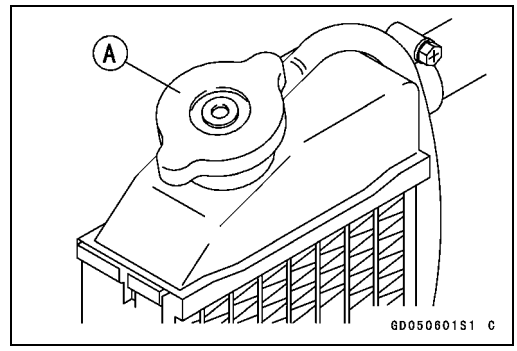
Check the coolant level each day before riding the motorcycle, and replenish coolant if the level is low. Change the coolant in accordance with the Periodic Maintenance Chart.

⚠ WARNING

To avoid burns, do not remove the radiator cap or try to inspect the coolant level or change the coolant when the engine is still hot. Wait until it cools down.

Periodic Maintenance Procedures

Coolant Level Inspection



NOTE

○*Check the level when the engine is cold (room or ambient temperature).*

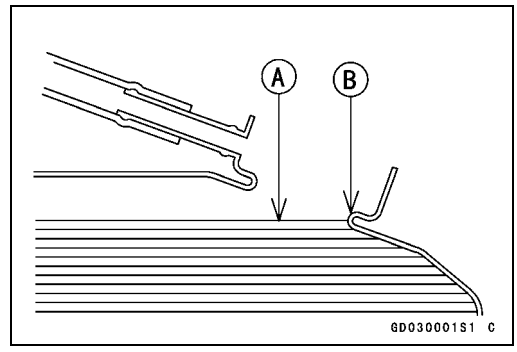
- Situate the motorcycle so that it is perpendicular to the ground.
- Remove the radiator cap [A].

NOTE

○*Remove the radiator cap in two steps. First turn the cap counterclockwise to the first stop and wait there for a few seconds. Then push down and turn it further in the same direction and remove the cap.*

- Check the coolant level. The coolant level [A] should be at the bottom of the filler neck [B].

★If the coolant level is low, add coolant through the filler opening to the bottom of the filler neck. Install the cap.



Recommended coolant:

Permanent type of antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators)

Water and coolant mixture ratio:

1:1 (water 50 %, Coolant 50 %)

Total amount:

KX125: 0.97 L (1.02 US qt.)

KX250: 1.20 L (1.27 US qt.)

Coolant Deterioration Inspection

- Visually inspect the coolant.

★If whitish cotton-like wafts are observed, aluminum parts in the cooling system are corroded. If the coolant is brown, iron or steel parts are rusting. In either case, flush the cooling system.

★If the coolant gives off an abnormal smell, check for a cooling system leak. It may be caused by exhaust gas leaking into the cooling system.

Coolant Draining

The coolant should be changed periodically to ensure long engine life.

⚠ WARNING

To avoid burns, do not remove the radiator cap or try to change the coolant when the engine is still hot. Wait until it cools down.

Coolant on tires will make them slippery and can cause an accident and injury. Immediately wipe up or wash away any coolant that spills on the frame, engine or other painted parts. Since coolant is harmful to the human body, do not use for drinking.

Periodic Maintenance Procedures

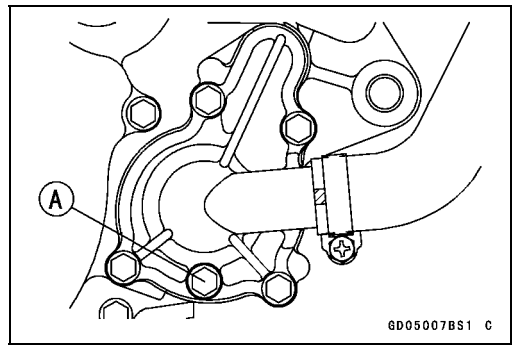
● Remove the radiator cap.

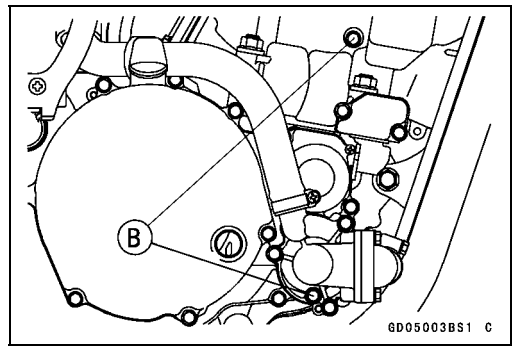
NOTE

○*Remove the radiator cap in two steps. First turn the cap counterclockwise to the first stop and wait there for a few seconds. Then push down and turn it further in the same direction and remove the cap.*

● Place a container under the coolant drain plug (KX125) [A] or plugs (KX250) [B], and drain the coolant from the radiator and engine by removing the drain plug on the water pump cover and the cylinder (KX250). Immediately wipe or wash out any coolant that spills on the frame, engine, or wheel.

● Inspect the old coolant for visual evidence of corrosion and abnormal smell (see Coolant Deterioration Inspection).





Coolant Filling

CAUTION

Use coolant containing corrosion inhibitors made specifically for aluminum engines and radiators in accordance with the instruction of the manufacture's. Soft or distilled water must be used with the antifreeze (see below for antifreeze) in the cooling system. If hard water is used in the system, it causes scale accumulation in the water passages, and considerably reduces the efficiency of the cooling system.

Recommended Coolant

Type:	**Permanent type antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators)**
Color:	**Green**
Mixed ratio:	**Soft water 50 %, Coolant 50 %**
Freezing point:	**−35°C (−31°F)**
Total amount	**KX125: 0.97 L (1.02 US qt.)**
	KX250: 1.20 L (1.27 US qt.)

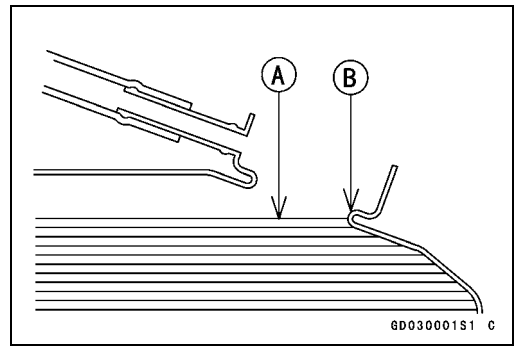
● Install the drain plug.

○Replace the gasket with a new one.

Torque - Coolant Drain Plug on Water Pump Cover: 8.8 N·m (0.9 kgf·m, 78 in·lb)

Coolant Drain Plug on Cylinder (KX250): 8.8 N·m (0.9 kgf·m, 78 ft·lb)

Periodic Maintenance Procedures



● Fill the radiator up to the bottom of the radiator filler neck [B] with coolant [A], and install the cap, turning it clockwise about 1/4 turn.

NOTE

○*Pour in the coolant slowly so that it can expel the air from the engine and radiator. The radiator cap must be installed in two steps. First turn the cap clockwise to the first stop. Then push down on it and turn it the rest of the way.*

● Check the cooling system for leaks.

Air Bleeding

Before putting the motorcycle into operation, any air trapped in the cooling system must be removed as follows.

● Start the engine, warm up the engine thoroughly, and then stop the engine. Wait until the engine cools down.
● Remove the radiator cap.
● Check the coolant level.
★ If the coolant level is low, add coolant up to the bottom of the filler neck.
● Install the radiator cap.
● Check the cooling system for leaks.

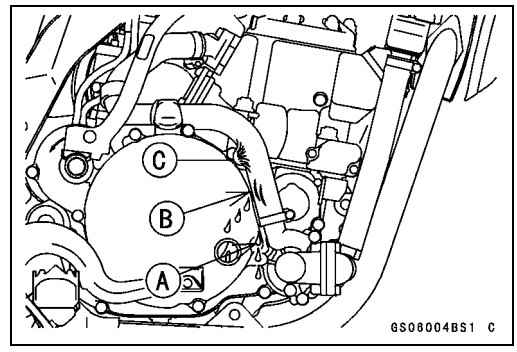
Cooling Hoses and Connections Inspection

○ The high pressure inside the cooling hose can cause coolant to leak [A] or the hose to burst if the line is not properly maintained. Visually inspect the hoses for signs of deterioration. Squeeze the hoses. A hose should not be hard and brittle, nor should it be soft or swollen.

★ Replace the hose if any fraying, cracks [B] or bulges [C] are noticed.

● Check that the hoses are securely connected and clamps are tightened correctly.

Torque - Cooling Hose Clamp Screws: 1.5 N·m (0.15 kgf·m, 13 in·lb)



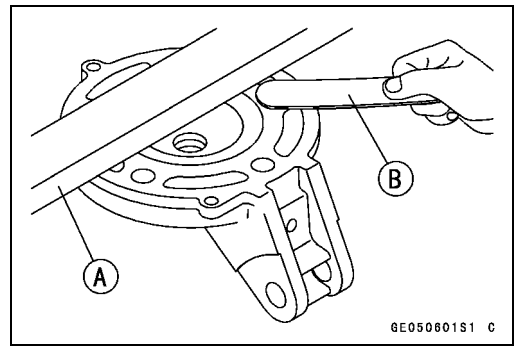
Engine Top End

Cylinder Head Warp Inspection

● Lay a straightedge [A] across the lower surface of the head at several different points, and measure warp by inserting a thickness gauge [B] between the straightedge and the head.

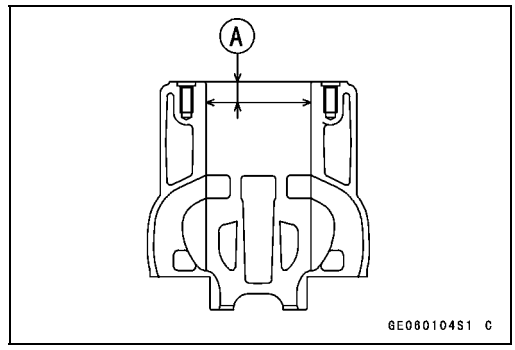
★ If warp exceeds the service limit, repair the mating surface. Replace the cylinder head if the mating surface is badly damaged.

Cylinder Head Warp
Service Limit: 0.03 mm (0.0012 in.)



Periodic Maintenance Procedures

Cylinder Wear Inspection



NOTE

○*Measure the cylinder inside diameter when the cylinder is cold (room or ambient temperature).*

- Visually Inspect the inside of the cylinder for scratches and abnormal wear.

★If the cylinder is damaged or badly worn, replace it with a new one.

- Since there is a difference in cylinder wear in different directions, take a side-to-side and a front-to back measurement shown in the figure.

★If any of the cylinder inside diameter measurements exceeds the service limit, the cylinder must be replaced with a new one since the PLATING cylinder cannot be bored or honed.

(A): KX125 - 15 mm (0.6 in.)
KX250 - 30 mm (1.2 in.)

Cylinder Inside Diameter

KX125:

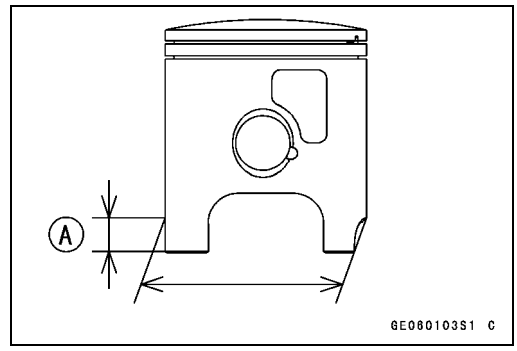
Standard	**54.010 ~ 54.025 mm (2.1264 ~ 2.1270 in.), and less than 0.01 mm (0.0004 in.) difference between any two measurements.**
Service Limit	**54.10 mm (2.130 in.), or more than 0.05 mm (0.020 in.) difference between any two measurements.**

KX250:

Standard	**66.400 ~ 66.415 mm (2.6142 ~ 2.6148 in.), and less than 0.01 mm (0.0004 in.) difference between any two measurements.**
Service Limit	**66.46 mm (2.617 in.), or more than 0.05 mm (0.020 in.) difference between any two measurements.**

Periodic Maintenance Procedures

Piston Diameter Measurement



- Measure the outside diameter of the piston 15.0 mm (0.59 in.) (KX125) or 20.5 mm (0.81 in.) (KX250) [A] up from the bottom of the piston at a right angle to the direction of the piston pin.

★If the measurement is under the service limit, replace the piston.

(A): KX125 - 15.0 mm (0.59 in.)
KX250 - 20.5 mm (0.81 in.)

Piston Diameter
KX125:
Standard: 53.955 ~ 53.970 mm (2.1242 ~ 2.1248 in.)
Service Limit: 53.81 mm (2.118 in.)
KX250:
Standard: 66.336 ~ 66.351 mm (2.6116 ~ 2.6122 in.)
Service Limit: 66.19 mm (2.606 in.)

Piston/Cylinder Clearance

The piston-to-cylinder clearance is measured whenever a piston or cylinder is replaced with a new one. The standard piston-to-cylinder clearance must be adhered to whenever the cylinder is replaced.

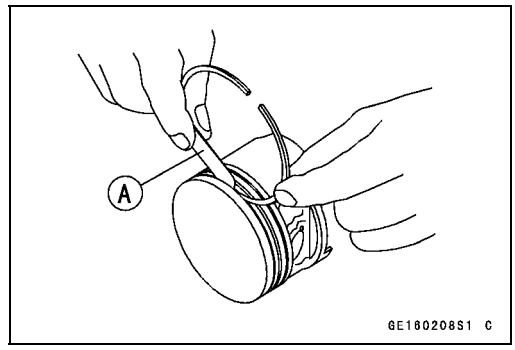
If only a piston is replaced, the clearance may exceed the standard slightly. But it must not be less than the minimum, in order to avoid piston seizure.

The most accurate way to find the piston clearance is by making separate piston and cylinder diameter measurements and then computing the difference between the two values. Measure the piston diameter as just described, and measure the cylinder diameter at the very bottom of the cylinder.

Piston/Cylinder Clearance
Standard:
KX125: 0.040 ~ 0.070 mm (0.0016 ~ 0.0028 in.)
KX250: 0.049 ~ 0.079 mm (0.0023 ~ 0.0031 in.)

Periodic Maintenance Procedures

Piston Ring, Piston Ring Groove Inspection



- Visually inspect the piston rings and the piston ring grooves.

★If the rings are worn unevenly or damaged, they must be replaced.

★If the piston ring grooves are worn unevenly or damaged, the piston must be replaced and fitted with new rings.

- Check for uneven groove wear by inspecting the ring seating.
- The rings should fit perfectly parallel to the groove surfaces. If not, the piston must be replaced.
- With the piston ring in its groove, make several measurements with a thickness gauge [A] to determine piston ring/groove clearance.

★If the clearance exceeds the service limit, measure the thickness of the piston ring

★If the ring has worn down to less than the service limit, replace the ring; if the groove width exceeds the service limit, replace the piston.

Piston Ring/Groove Clearance

KX125:

Standard:	**0.015 ~ 0.050 mm (0.0006 ~ 0.0020 in.)**
Service Limit:	**0.15 mm (0.0059 in.)**

KX250:

Standard:	**0.025 ~ 0.060 mm (0.0010 ~ 0.0024 in.)**
Service Limit:	**0.16 mm (0.006 in.)**

Piston Ring Thickness

KX125:

Standard:	**0.980 ~ 0.995 mm (0.0386 ~ 0.0392 in.)**
Service Limit:	**0.91 mm (0.036 in.)**

KX250:

Standard:	**0.970 ~ 0.985 mm (0.0382 ~ 0.0388 in.)**
Service Limit:	**0.90 mm (0.035 in.)**

Piston Ring Groove Width

KX125:

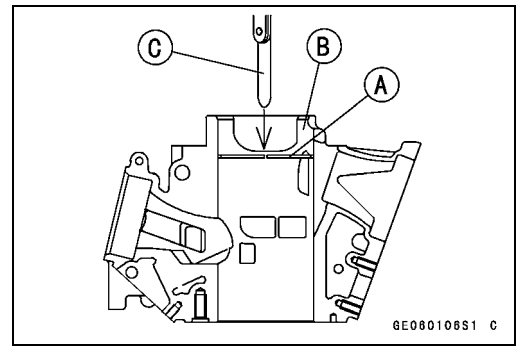
Standard:	**1.01 ~ 1.03 mm (0.0398 ~ 0.0406 in.)**
Service Limit:	**1.11 mm (0.044 in.)**

KX250:

Standard:	**1.01 ~ 1.03 mm (0.0398 ~ 0.0406 in.)**
Service Limit:	**1.11 mm (0.044 in.)**

Periodic Maintenance Procedures

Piston Ring End Gap Inspection



- Place the piston ring [A] inside the cylinder [B], using the piston to locate the ring squarely in place.
- Set it close to the bottom of the cylinder, where cylinder wear is low.
- Measure the gap between the ends of the ring with a thickness gauge [C]

★If the gap is wider than the service limit, the ring is overworn and must be replaced.

Piston Ring End Gap

KX125:

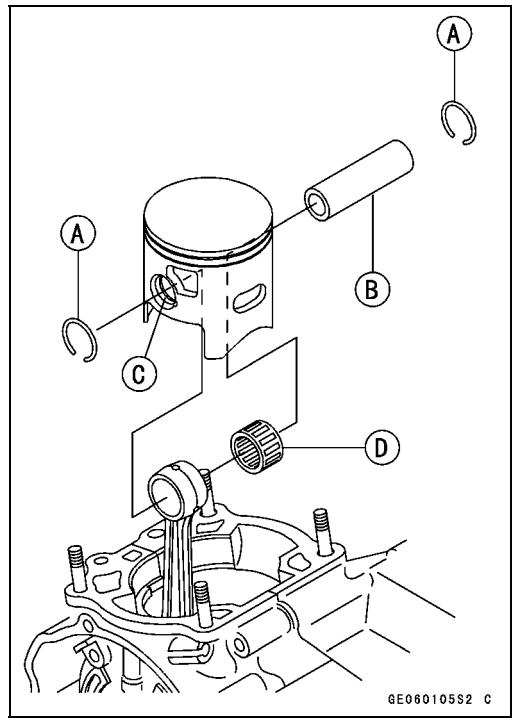
Standard:	**0.35 ~ 0.55 mm (0.0138 ~ 0.0217 in.)**
Service Limit:	**0.85 mm (0.033 in.)**

KX250:

Standard:	**0.25 ~ 0.45 mm (0.0098 ~ 0.0177 in.)**
Service Limit:	**0.75 mm (0.030 in.)**

Periodic Maintenance Procedures

Piston, Piston Pin, Connecting Rod Wear Inspection



- Visually inspect the snap ring [A] still fitted in place.

★If the ring shows weakness or deformation, replace the ring. Also if the pin hole groove shows excessive wear, replace the piston.

- Measure the diameter of the piston pin [B] with a micrometer.

★If the piston pin diameter is less than the service limit at any point, replace the piston pin.

- Using a cylinder gauge, measure the diameter of both of piston pin holes [C] in the piston and the inside diameter of the connecting rod small end.

★If either piston pin hole diameter exceeds the service limit, replace the piston.

★If the connecting rod small end inside diameter exceeds the service limit, replace the crankshaft assembly.

- Check the needle bearing [D].

○The rollers in a needle bearing normally wear very little, and wear is difficult to measure. Instead of measuring, inspect the bearing for abrasion, color change, other damage.

★If there is any doubt as to the condition of a needle bearing, replace the bearing and piston pin.

Piston Pin Diameter

KX125

Standard:	**14.995 ~15.000 mm (0.5904 ~ 0.5906 in.)**
Service Limit:	**14.96 mm (0.589 in.)**

KX250

Standard:	**17.995 ~18.000 mm (0.7085 ~ 0.7087 in.)**
Service Limit:	**17.96 mm (0.707 in.)**

Piston Pin Hole Diameter

KX125

Standard:	**15.001 ~ 15.011 mm (0.5906 ~ 0.5910 in.)**
Service Limit:	**15.08 mm (0.594 in.)**

KX250

Standard:	**18.001 ~ 18.011 mm (0.7087 ~ 0.7091 in.)**
Service Limit:	**18.08 mm (0.712 in.)**

Small End Inside Diameter

KX125

Standard:	**19.003 ~ 19.014 mm (0.7481 ~ 0.7486 in.)**
Service Limit:	**19.05 mm (0.750 in.)**

KX250

Standard:	**22.003 ~ 22.012 mm (0.8663 ~ 0.8666 in.)**
Service Limit:	**22.05 mm (0.868 in.)**

Periodic Maintenance Procedures

Exhaust Valve Clean and Inspect

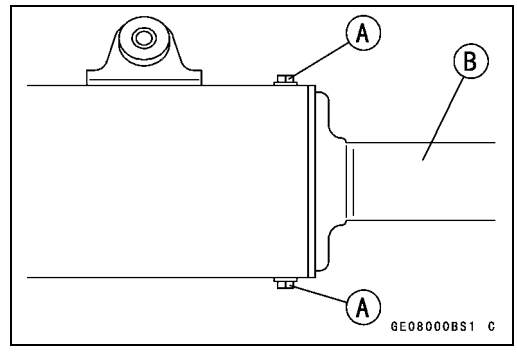
- Refer to the Exhaust Valve (KIPS) section in the Engine Top End chapter.

Exhaust System

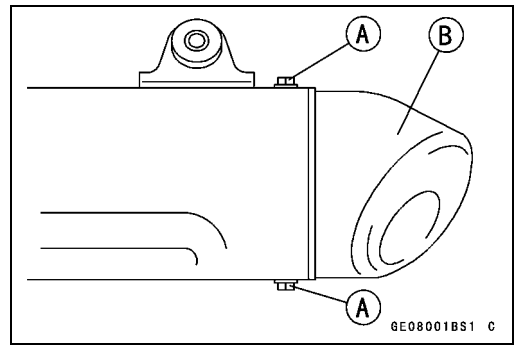
- The exhaust system, in particular the silencer, is designed to reduce exhaust noise and conduct the exhaust gases away from the rider while minimizing power loss. If carbon has built up inside the silencer, exhaust efficiency is reduced, causing engine performance to drop.
- If the silencer is badly damaged, dented, cracked or rusted, replace it. Replace the silencer packing if the exhaust noise becomes too loud or engine performance drops.

Silencer Packing Change

- Remove the silencer.
- Remove the inner pipe mounting bolts [A], and pull the inner pipe [B] from the silencer body.

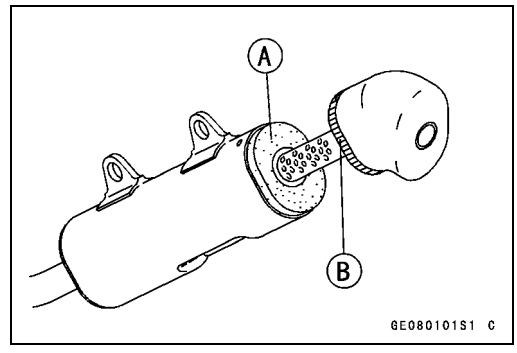


- Unscrew the silencer pipe mounting bolts [A].
- Pull the silencer pipe [B] from the silencer body.



- Pull off the old silencer packing, and install the new silencer packing [A] into the silencer.
- Apply silicone sealant to the circumference [B] of the silencer pipe and inner pipe.
- Apply a non-permanent locking agent to the pipe mounting bolts.
- Install the silencer.

Torque - Silencer Inner Pipe Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)
Silencer Pipe Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)



Engine Right Side

⚠ WARNING

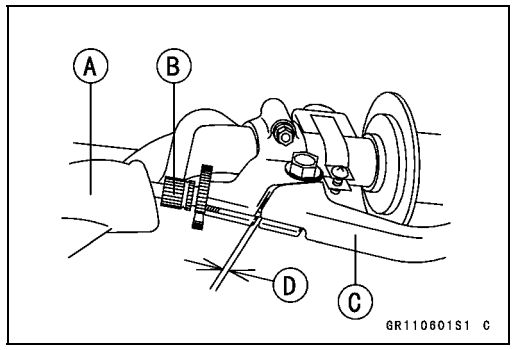
To avoid a serious burn, never touch the hot engine or exhaust chamber during clutch adjustment.

Periodic Maintenance Procedures

Clutch Lever Free Play Check

- Slide the clutch lever dust cover [A] out of place.
- Check that the clutch cable upper end is fully seated in the adjuster [B].
- Check that the clutch lever [C] has 2 ~ 3 mm (0.08 ~ 0.12 in.) of play [D].

★If it does not, adjust the lever play.



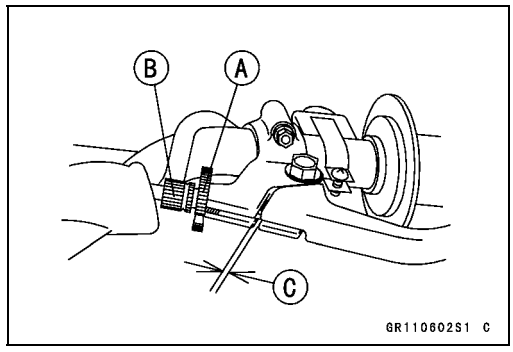
Clutch Lever Free Play Adjustment

- Slide the clutch lever dust cover out of place.
- Loosen the knurled locknut [A].
- Turn the adjuster [B] so that the clutch lever will have 2 ~ 3 mm (0.08 ~ 0.12 in.) of play [C].

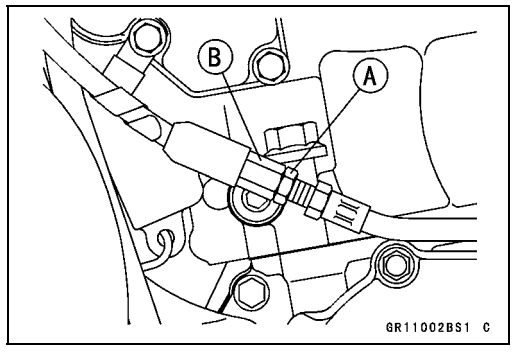
NOTE

○*Be sure that the outer cable end at the clutch lever is fully seated in the adjuster at the clutch lever, or it could slip into the place later, creating enough cable play to prevent clutch disengagement.*

- Tighten the locknut.



- If it cannot be done, loosen the locknut [A] at the lower of the clutch cable, and turn the adjusting nut [B] so that clutch lever has 2 ~ 3 mm (0.08 ~ 0.12 in.) of play.
- After the adjustment is made, tighten the locknut, and start the engine and check that the clutch does not slip and that it release properly.



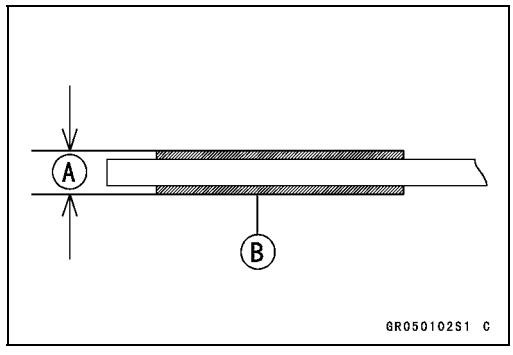
Friction and Steel Plates Wear, Damage Inspection

- Visually inspect the friction and steel plates to see if they show any signs of seizure, or uneven wear.

★If any plates show signs of damage, replace the friction plates and steel plates as a set.

- Measure the thickness [A] of the friction plates [B] and steel plates with vernier calipers.

★If they have worn past the service limit, replace them with new ones.



Periodic Maintenance Procedures

Friction Plate Thickness

KX125:

Standard:	**2.72 ~ 2.88 mm (0.107 ~ 0.113 in.)**
Service Limit:	**2.6 mm (0.102 in.)**

KX250:

Standard:	**2.92 ~ 3.08 mm (0.115 ~ 0.121 in.)**
Service Limit:	**2.8 mm (0.110 in.)**

Steel Plate Thickness

KX125:

Standard:	**1.5 ~ 1.7 mm (0.059 ~ 0.067 in.)**
Service Limit:	**1.4 mm (0.055 in.)**

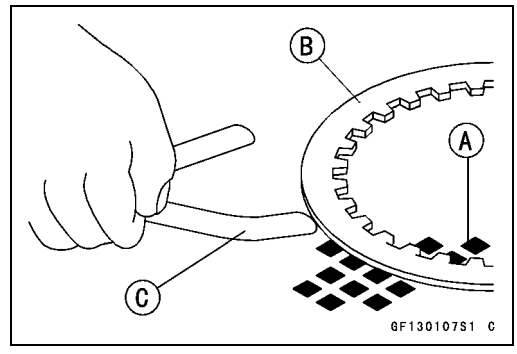
KX250:

Standard:	**1.46 ~ 1.74 mm (0.057 ~ 0.069 in.)**
Service Limit:	**1.36 mm (0.054 in.)**

Friction and Steel Plate Warp Inspection

- Place each friction plate or steel plate on a surface plate, and measure the gap between the surface plate [A] and each friction plate or steel plate [B] with a thickness gauge [C]. The gap is the amount of friction or steel plate warp.

★If any plate is warped over the service limit, replace it with a new one.



Friction and Steel Plates Warp

Standard:

Friction Plate	**Not more than 0.15 mm (0.006 in.)**
Steel Plate	**Not more than 0.2 mm (0.008 in.)**

Service Limit:

Friction Plate	**0.3 mm (0.012 in.)**
Steel Plate	**0.3 mm (0.012 in.)**

Engine Bottom End/Transmission

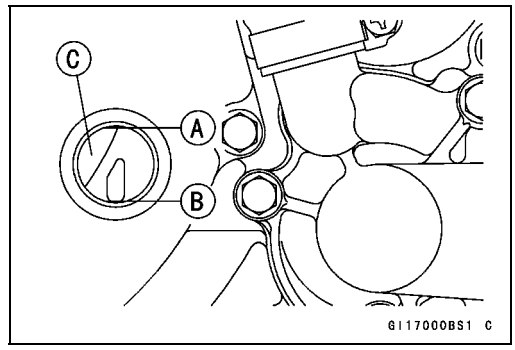
In order for the transmission and clutch to function properly, always maintain the transmission oil at the proper level and change the oil periodically.

⚠ WARNING

Motorcycle operation with insufficient, deteriorated, or contaminated transmission oil will accelerated wear and may result in transmission seizure, and injury.

Periodic Maintenance Procedures

Transmission Oil Level Inspection



- Situate the motorcycle so that it is perpendicular to the ground.
- If the motorcycle has just been used, wait several minutes until the oil settles.
- Check that the oil level comes up between the upper level [A] and lower level [B] through the oil level gauge [C] on the clutch cover.

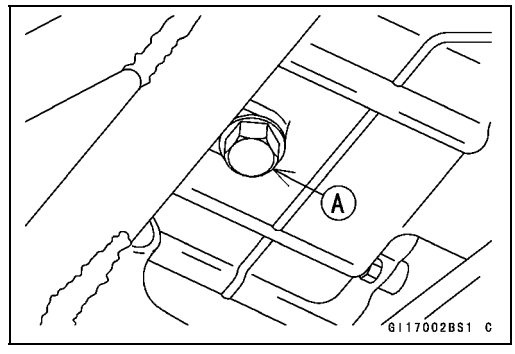
★If the oil level is too high, remove the excess oil through the oil filler opening using a syringe or some other suitable device.

★If the oil level is too low, add the correct amount of oil. Use the same type and make of oil that is already in the engine.

NOTE

○*If the transmission oil type and make are unknown, use any brand of the specified oil to top up the level in preference to running the engine with the oil level low. Then at your earliest convenience, change the oil completely.*

Transmission Oil Change



- Warm up the engine thoroughly so that the oil will pick up any sediment and drain easily. Then stop the engine.
- Place an oil pan beneath the engine.
- Remove the transmission oil drain plug [A] on the bottom of the engine, and let the oil drain completely.

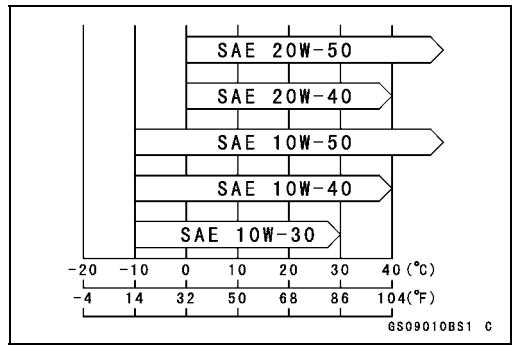
NOTE

○*Hold the motorcycle upright so that the oil may drain completely.*

- Replace the gasket at the drain plug with a new one.
- After the oil has completely drained out, install the drain plug with the gasket, and tighten it.

Torque - Transmission Oil Drain Plug: 20 N·m (2.0 kgf·m, 14.5 ft·lb)

- Fill the engine with a good quality motor oil specified below.
- Check the oil level.



Recommended Transmission Oil

Type	**API SE, SF or SG**
	API SH or SJ with JASO MA
Viscosity	**SAE10W-40**
Capacity	**KX125: 0.7 L (0.74 US qt.)**
	KX250: 0.85 L (0.90 US qt.)

NOTE

○*Although 10W-40 engine oil is the recommended oil for most conditions, the oil viscosity may need to be changed to accommodate atmospheric conditions in your riding area.*

Periodic Maintenance Procedures

Wheel/Tires

Spoke Tightness Inspection

- Check that all the spokes are tightened evenly.

★If spoke tightness is uneven or loose, tighten the spoke nipples evenly.

Torque - Spoke Nipples: 2.2 N·m (0.22 kgf·m, 19 in·lb)

- Check the rim runout.

⚠ WARNING

If any spoke breaks, it should be replaced immediately. A missing spoke places an additional load on the other spokes, which will eventually cause other spokes to break.

Rim Runout Inspection

- Place the jack under the frame so that the front/rear wheel off the ground.

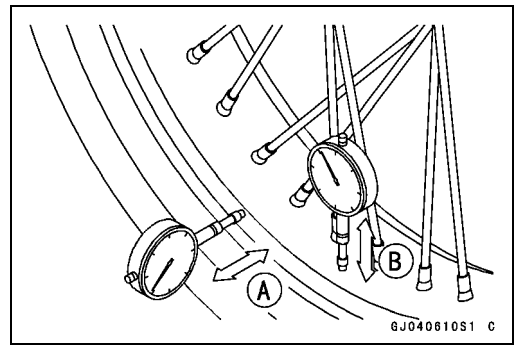
Special Tool - Jack: 57001-1238

- Inspect the rim for small cracks, dents, bending, or warping.

★If there is any damage to the rim, it must be replaced.

- Set a dial gauge against the side of the rim, and rotate the rim to measure the axial runout [A]. The difference between the highest and lowest dial readings is the amount of runout.
- Set a dial gauge against the outer circumference of the rim, and rotate the rim to measure radial runout [B]. The difference between the highest and lowest dial readings is the amount of runout.

★If rim runout exceeds the service limit, check the wheel bearings first. Replace them if they are damaged. If the problem is not due to the bearings, correct the rim warp (runout). A certain amount of rim warp can be corrected by recentering the rim. Loosen some spokes and tighten others within the standard torque to change the position of different parts of the rim. If the rim is badly bent, however, it must be replaced.



Rim Runout (with tire installed)

Standard:	
Axial	**under 1.0 mm (0.04 in.)**
Radial	**under 1.0 mm (0.04 in.)**
Service Limit:	
Axial	**2 mm (0.08 in.)**
Radial	**2 mm (0.08 in.)**

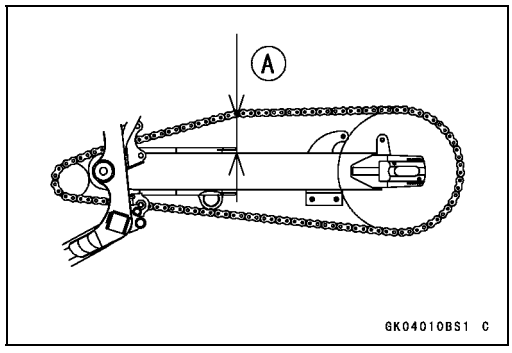
Wheel Bearing Inspection

- Refer to the Hub Bearing Inspection in the Wheels/Tires chapter.

Periodic Maintenance Procedures

Final Drive

Drive Chain Slack Inspection



- Raise the rear wheel off the ground, rotate the rear wheel to find the place where the chain is tightest (because it wears unevenly).
- Check the wheel alignment (see Wheel Alignment Inspection in the Final Drive chapter), and adjust it if necessary (see Wheel Alignment Adjustment in the Final Drive chapter).

NOTE

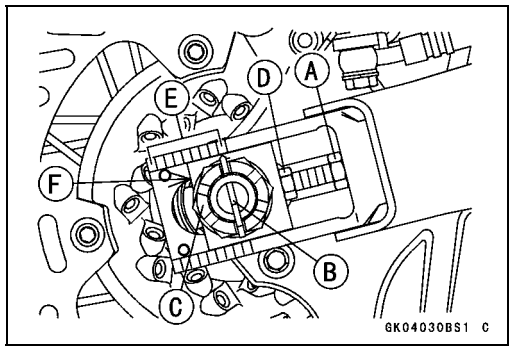
○*Clean the drive chain if it is dirty, and lubricate it if it appears dry.*

- Rotate the rear wheel to find the position where the chain is tightest.
- Measure the space (chain slack) [A] between the chain and the swing-arm at the rear of the chain slipper as shown.

★If the drive chain slack exceeds the standard, adjust it.

Chain Slack
Standard: 52 ~ 62 mm (2.05 ~ 2.44 in.)

Drive Chain Slack Adjustment



- Loosen the left and right chain adjuster locknuts [A].
- Remove the cotter pin [B] and loosen the axle nut [C].

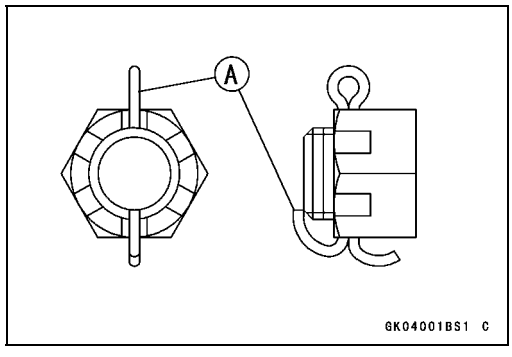
★If the chain is too tight, back out the left and right chain adjusting bolts [D] evenly, and push the wheel forward until the chain is too loose.

★If the chain is too loose, turn both chain adjusting bolts evenly until the drive chain has the correct amount of slack. To keep the chain and wheel properly aligned, the rear end of the left chain adjuster should align with the same swingarm mark [E] as the right chain adjuster rear end [F].

- Check the wheel alignment.
- Tighten both chain adjuster locknuts securely.
- Tighten the axle nut.

Torque - Rear Axle Nut: 110 N·m (11.0 kgf·m, 80 ft·lb)

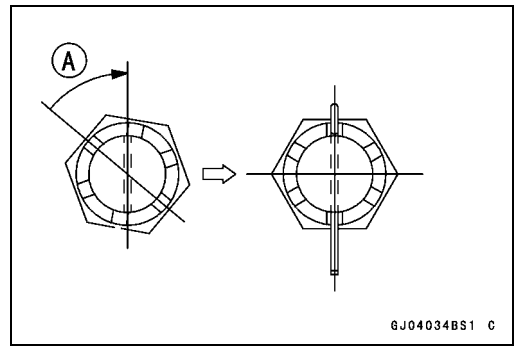
- Rotate the wheel, measure the chain slack again at the tightest position, and readjust if necessary.
- Install a new cotter pin [A] through the axle nut and axle, and spread its ends.



Periodic Maintenance Procedures

NOTE

○*When inserting the cotter pin, if the slots in the nut do not align with the cotter pin hole in the axle shaft, tighten the nut clockwise [A] up to next alignment.*
○*It should be within 30 degree.*
○*Loosen once tighten again when the slot goes past the nearest hole.*



⚠ WARNING

If the axle nut is not securely tightened, or the cotter pin is not installed, an unsafe riding condition may result.

● Check the rear brake (see Brakes chapter).

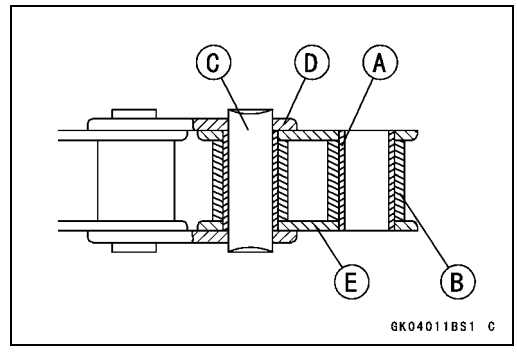
NOTE

○*In wet and muddy conditions, mud sticks to the chain and sprockets resulting in an overly tight chain, and the chain may break. To prevent this, adjust the chain to 62 ~ 72 mm (2.44 ~ 2.83 in.) of slack whenever necessary.*

Drive Chain Wear Inspection

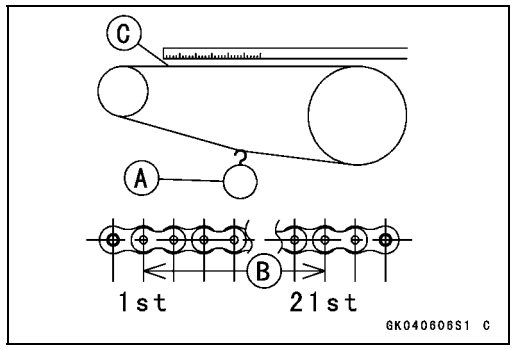
● Rotate the rear wheel to inspect the drive chain for damaged rollers, and loose pins and links.
★If there is any irregularity, replace the drive chain.
★Lubricate the drive chain if it appears dry.

A. Bushing
B. Roller
C. Pin
D. Pin Link
E. Roller Link



Periodic Maintenance Procedures

- Stretch the chain taut by hanging a 98 N (10 kgf, 20 lb) weight [A] on the chain.
- Measure the length of 20 links [B] on the straight part [C] of the chain from the pin center of the 1st pin to the pin center of the 21st pin. Since the chain may wear unevenly, take measurements at several places.



Chain 20-link Length

Standard:	**317.5 ~ 318.2 mm (12.50 ~ 12.53 in.)**
Service Limit:	**323 mm (12.72 in.)**

★If any measurements exceed the service limit, replace the chain. Also, replace the front and rear sprockets when the drive chain is replaced.

⚠ WARNING

If the drive chain wear exceeds the service limit, replace the chain or an unsafe riding condition may result. A chain that breaks or jumps off the sprockets could snag on the engine sprocket or lock the rear wheel, severely damaging the motorcycle and causing it to go out of control.

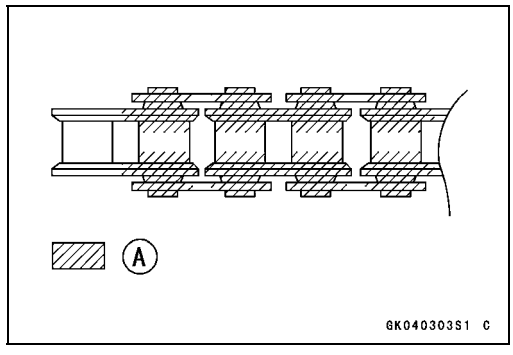
Standard Chain

Make:	**DAIDO**
Type:	**D.I.D 520DMA2**
Link:	
KX125	**112 Links**
KX250	**114 Links**

Drive Chain Lubrication

- If the chain appears especially dirty, it should be cleaned before lubrication with high flash-point solvent.
- If a special lubricant is not available, a heavy oil such as SAE90 is preferred to a lighter oil because it will stay on the chain longer and provide better lubrication.
- Apply oil to the sides of the rollers so that oil will penetrate to the rollers and bushings.
- Wipe off any excess oil.

Oil applied area [A]

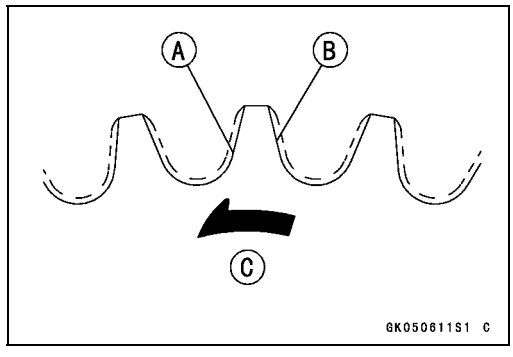


Sprocket Wear Inspection

- Visually inspect the front and rear sprocket teeth for wear and damage.

★If they are worn as illustrated or damaged, replace the sprocket.

A. Worn Tooth (Engine Sprocket)
B. Worn Tooth (Rear Sprocket)
C. Direction of Rotation

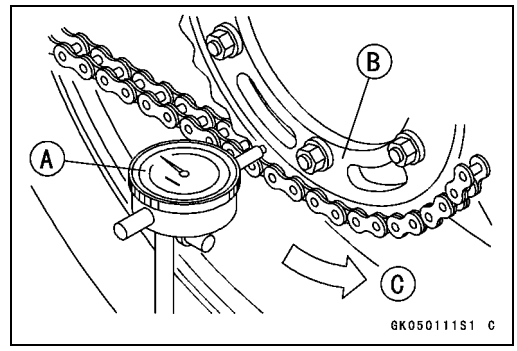


NOTE

○*If a sprocket requires replacement, the chain is probably worn also. When replacing a sprocket, inspect the chain.*

Periodic Maintenance Procedures

Rear Sprocket Warp Inspection



- Using the jack, raise the rear wheel off the ground.

  Special Tool - Jack: 57001-1238

- Set a dial gauge [A] against the rear sprocket [B] near the teeth as shown and rotate [C] the rear wheel to measure the sprocket runout (warp). The difference between the highest and lowest dial gauge readings is the amount of runout (warp).

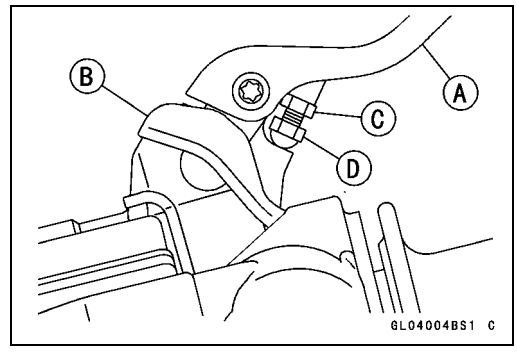
★If the runout exceeds the service limit, replace the rear sprocket.

Rear Sprocket Warp

Standard:	**Under 0.4 mm (0.016 in.)**
Service Limit:	**0.5 mm (0.020 in.)**

Brakes

Brake Lever Play Adjustment



- Adjust the front brake lever [A] to suit you.
- Slide the brake lever dust cover [B] out of place.
- Loosen the adjuster locknut [C] and turn the adjuster [D] to either side.
- After adjustment, tighten the locknut.

⚠ WARNING

Always maintain proper brake adjustment. If adjustment is improper, the brake could drag and overheat. This could damage the brake assembly and possibly lock the wheel resulting in loss of control.

Periodic Maintenance Procedures

Brake Fluid Level Inspection

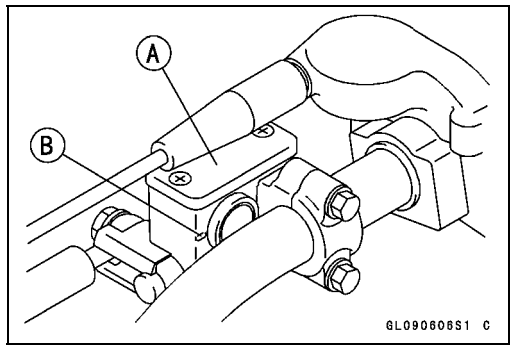
In accordance with the Periodic Maintenance Chart, inspect the brake fluid level in the front or rear brake fluid reservoirs.

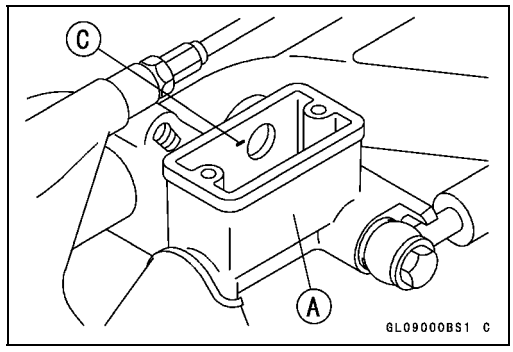
● Check the brake fluid level in the front or rear brake reservoir [A].

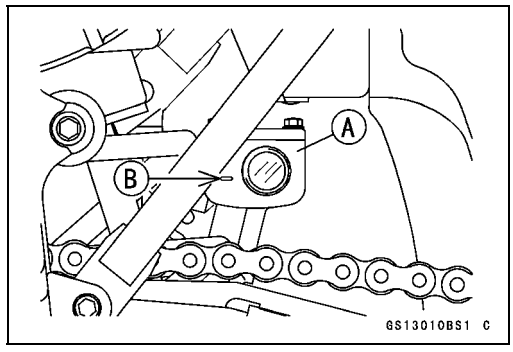
NOTE

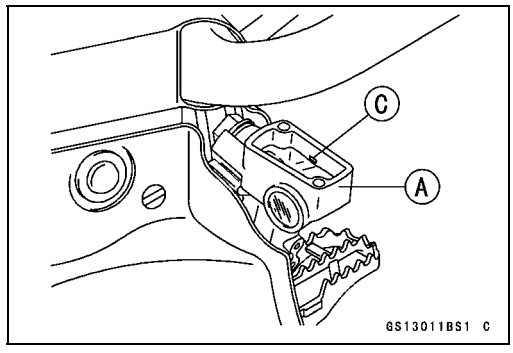
○*Hold the reservoir horizontal when checking brake fluid level.*

○*The front or rear reservoir must be kept above the lower level line [B]. If the fluid level in front or rear reservoir is lower than the lower level line, fill the reservoir to the upper level line. Inside the reservoir is stopped end showing the upper level line [C].*









Periodic Maintenance Procedures

Brake Fluid Change

In accordance with the Periodic Maintenance Chart, change the brake fluid. The brake fluid should also be changed if it becomes contaminated with dirt or water. Furthermore, the brake fluid should be changed to bleed the air quickly and completely whenever the brake line parts are removed.

⚠ WARNING

Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that already is in the reservoir are unidentified. After changing the fluid, use only the same type and brand of fluid thereafter. Mixing different types and brand of brake fluid lowers the brake fluid boiling point and could cause the brake to be ineffective. It may also cause the rubber brake parts to deteriorate.

Recommended Disc Brake Fluid

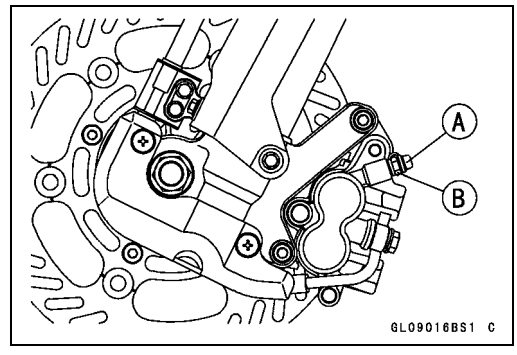
Type:

Front	**DOT3 or DOT4**
Rear	**DOT4**

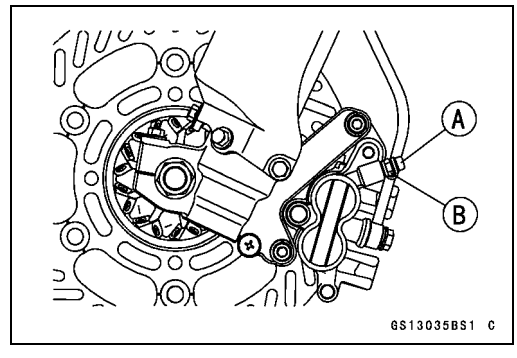
NOTE

○*The procedure to change the front brake fluid. Changing the rear brake fluid is the same as for the front brake.*

- Level the brake fluid reservoir.
- Remove the reservoir cap.
- Remove the rubber cap [A] on the bleed valve [B].
- Attach a clear plastic hose to the bleed valve on the caliper, and run the other end of the hose into a container.



- For KX125/250-M2 model~; as shown in the figure.



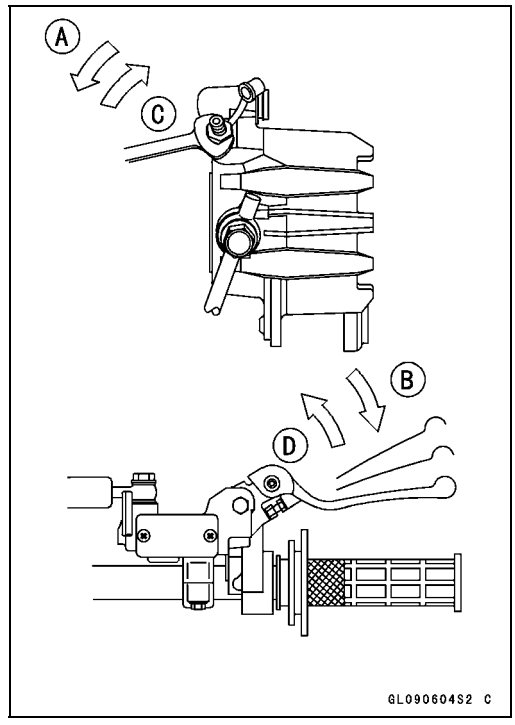
Periodic Maintenance Procedures

● Change the brake fluid as follows:
○Repeat this operation until fresh brake fluid comes out from the plastic hose or the color of the fluid changes.
1. Open the bleed valve [A]
2. Apply the brake and hold it [B]
3. Close the bleed valve [C]
4. Release the brake [D]

○Fill the reservoir with fresh specified brake fluid.

NOTE

○*The fluid level must be checked often during the changing operation and replenished with fresh brake fluid. If the fluid in the reservoir runs out any time during the changing operation, the brakes will need to be bled since air will have entered the brake line.*



● Remove the clear plastic hose.
● Tighten the bleed valves, and install the rubber caps.

Torque - Caliper Bleed Valve: 7.8 N·m (0.8 kgf·m, 69 in·lb)

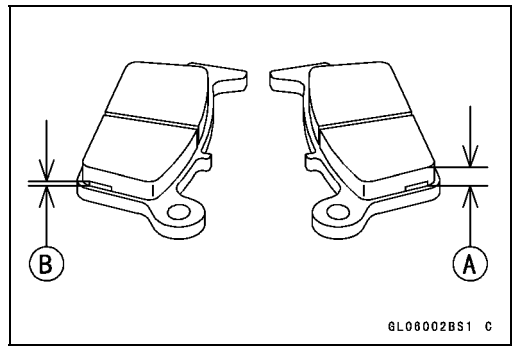
● After changing the fluid, check the brake for good braking power, no brake drag, and no fluid leakage.
★If necessary, bleed the air from the lines.

⚠ WARNING

Do not mix two brands of fluid. Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that is already in the reservoir are unidentified.

Brake Pad Wear Inspection

● Remove the brake pad (see Brake Pad Removal in Brakes chapter).
● Check the lining thickness and condition of the pads in each caliper.
★If either pad is damaged, replace both pads in the caliper as a set.
★If the lining thickness [A] of either pad is less than the service limit [B], replace both pads in the caliper as a set.



Lining Thickness

Standard:	
Front	**3.8 mm (0.150 in.)**
Rear	**6.4 mm (0.252 in.)**
Service Limit:	
Front	**1 mm (0.04 in.)**
Rear	**1 mm (0.04 in.)**

● Install the brake pad (see Brake Pad Installation in Brakes chapter).
● Tighten:

Torque - Brake Pad Bolt: 18 N·m (1.8 kgf·m, 13 ft·lb)

Brake Master Cylinder Cup and Dust Seal Replacement

● Refer to the Master Cylinder section in the Brakes chapter for Brake Master Cylinder Seal Replacement.

Periodic Maintenance Procedures

Caliper Piston Seal and Dust Seal Replacement

- Refer to the Calipers section in the Brakes chapter for Caliper Piston Dust Seal Replacement.

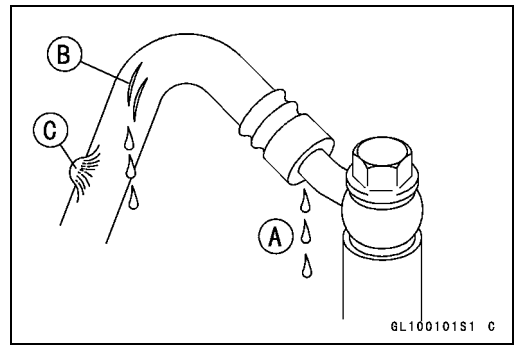
Brake Hose and Connection Check

- Inspect the brake hose and fittings for deterioration, cracks and signs of leakage.

○The high pressure inside the brake line can cause fluid to leak [A] or the hose to burst if the line is not properly maintained. Bend and twist the rubber hose while examining it.

★Replace the hose if any cracks [B] or bulges [C] are noticed.

★Tighten any loose fittings.



Suspension

Front Fork Oil Leak Inspection

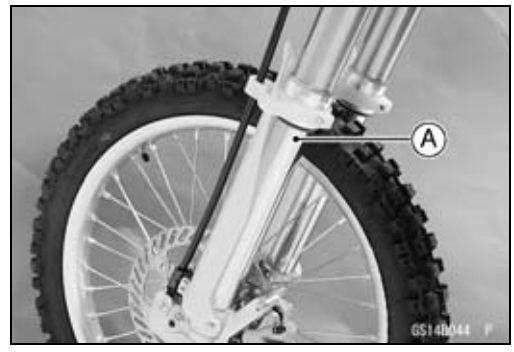
- Visually inspect the front fork for oil leakage, scoring or scratches on the outer surface of the inner tube [A].

★If necessary, repair any damage.

- Nick or rust damage can sometimes be repaired by using a wet-stone to remove sharp edges or raised areas which cause seal damage.

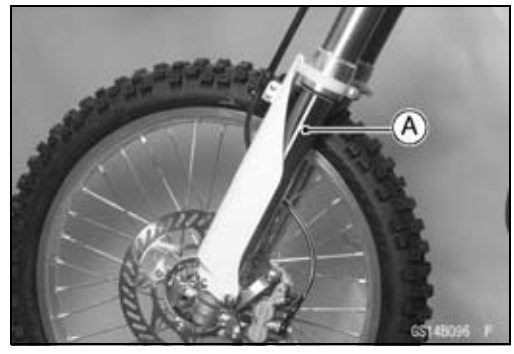
★If the damage is not repairable, replace the inner tube. Since damage to the inner tube damages the oil seal, replace the oil seal whenever the inner tube is repaired or replaced.

- Temporarily assemble the inner and outer tubes, and pump them back and forth manually to check for smooth operation.



CAUTION
If the inner tube is badly bent or creased, replace it. Excessive bending, followed by subsequent straightening, can weaken the inner tube.

- For KX125/250-M2 model ~; as shown in the figure.

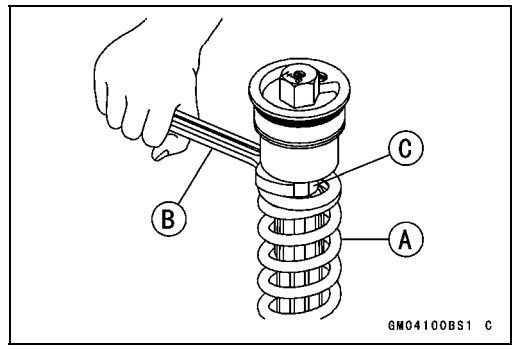


Periodic Maintenance Procedures

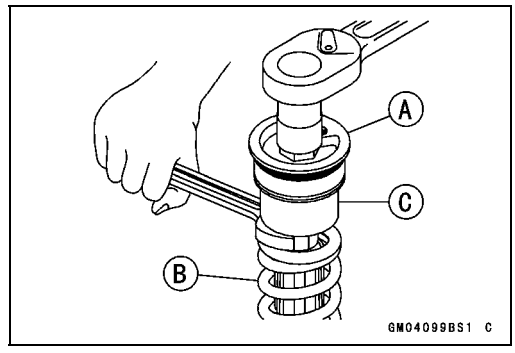
Front Fork Oil Change/Oil Level Adjustment (each fork leg)

- Loosen the front fork upper clamp bolts.
- Place the handlebar on one side, and loosen the fork top plug.
- Remove the front fork.
- Hold the inner tube lower end in a vise.
- Disassemble the top plug from the outer tube.
- Push the outer tube all the way down away from the top plug and hold it there throughout the following procedure.

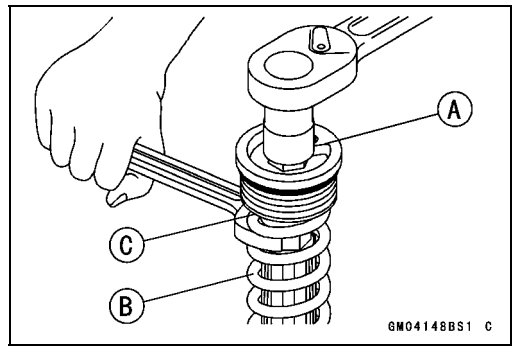
○For KX125/250-M1 model, pull the fork spring [A] away from the top plug a little and slip the spanner wrench [B] in on top of the spring seat and under the push rod nut [C].



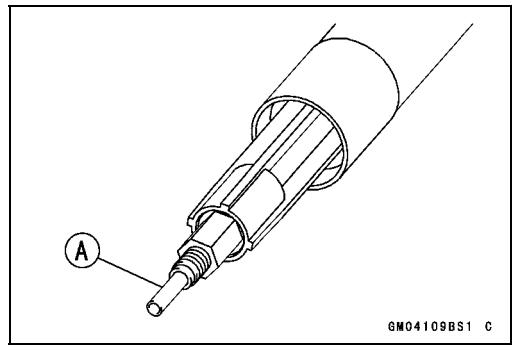
- Use wrenches on the rod nut and the top plug [A] to loosen the push rod nut.
- Remove the top plug from the push rod.
- Lift the fork spring [B] and its top spring seat [C] out of the outer tube.



- For KX125/250-M2 model ~; as shown in the figure.

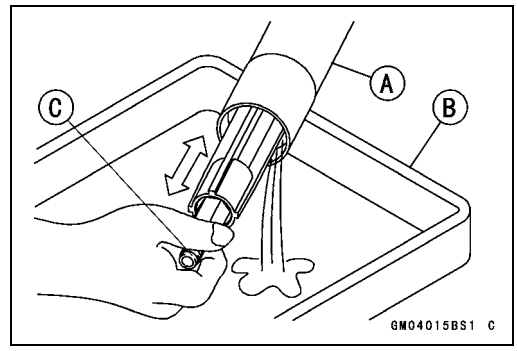


- Take the rebound damping adjuster rod [A] out of the push rod.



Periodic Maintenance Procedures

- Hold the fork tube [A] upside down over a clean container [B] and pump it to drain the oil.



NOTE

○*To discharge the fork oil, pump the push rod up [C] and down ten times.*

- Hold the fork tube upright, press the outer tube and the push rod all the way down.
- Insert the rebound damping adjuster rod into the push rod.

NOTE

○*The spring should not be installed.*

- Fill the specified oil to the outer tube.

Recommended Oil

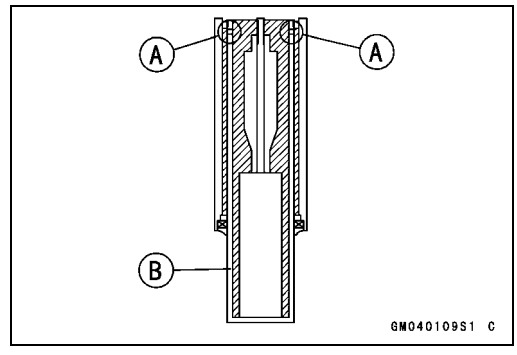
KAYABA 01 or SAE 5W-20

Front Fork Oil Capacity

KX125-M1:	**652 ±4 mL (22.04 ±0.14 US oz)**
KX125-M2~:	**565 ±4 mL (19.10 ±0.14 US oz)**
KX250-M1:	**664 ±4 mL (22.45 ±0.14 US oz)**
KX250-M2~:	**578 ±4 mL (19.54 ±0.14 US oz)**

NOTE

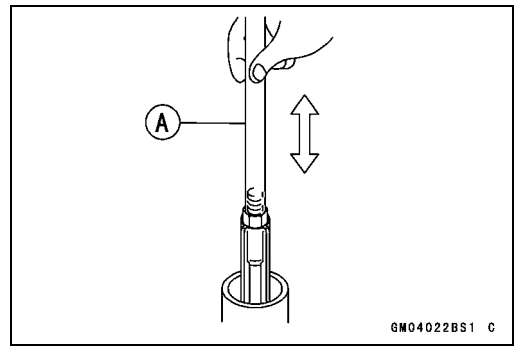
○*While doing this, take care to keep the oil level topped off so that it stays above the two large holes [A] near the top of the inner tube [B].*



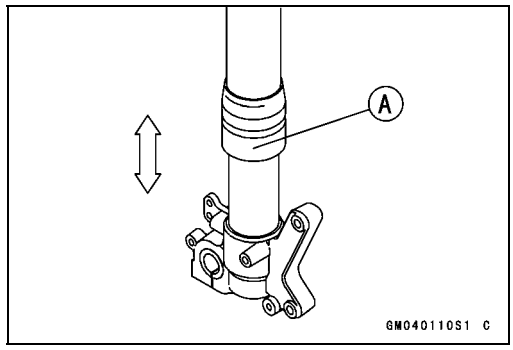
- Screw the fork piston rod puller [A] onto the end of the push rod.

Special Tool - Fork Piston Rod Puller, M12 x 1.25: 57001 -1289

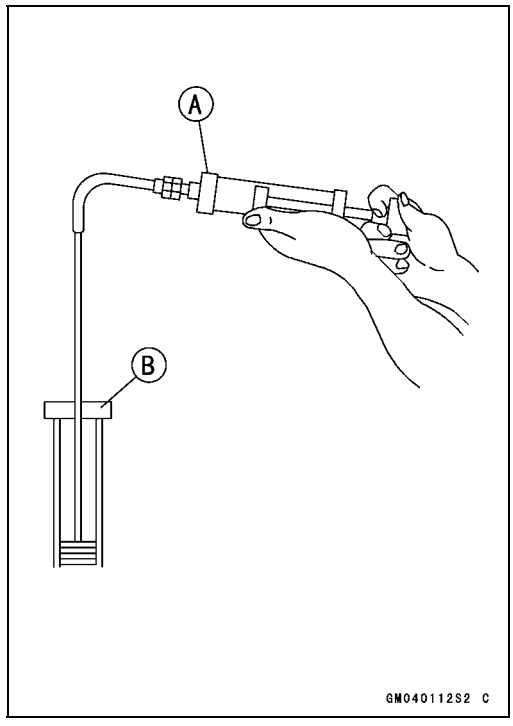
- Purge the air from the fork cylinder by gently moving the piston rod puller up and down five times.
- Remove the fork piston rod puller.



Periodic Maintenance Procedures



- Purge the air from between the inner and outer tubes by pumping the outer tube [A] up and down.
- After purging the air from the assembly, let it sit for about five minutes so that any suspended air bubbles can surface.
- Install the spring guide.
- Screw the push rod nut.



- Adjust the oil level.

○With the fork fully compressed, put the oil level gauge [A] and the stopper [B], and inspect the distance from the top of the inner tube to the oil.

Special Tool - Fork Oil Level Gauge: 57001-1290

Oil Level (fully compressed, without spring)

Standard

KX125-M1:	**133 ~ 137 mm (5.24 ~ 5.39 in.)**
KX125-M2~:	**103 ~ 107 mm (4.06 ~ 4.21 in.)**
KX250-M1:	**123 ~ 127 mm (4.84 ~ 5.00 in.)**
KX250-M2~:	**86 ~ 90 mm (3.39 ~ 3.54 in.)**

Adjustable Range

KX125/250-M1:	**100 ~ 145 mm (3.94 ~ 5.71 in.)**
KX125/250-M2~:	**70 ~ 120 mm (2.76 ~ 4.72 in.)**

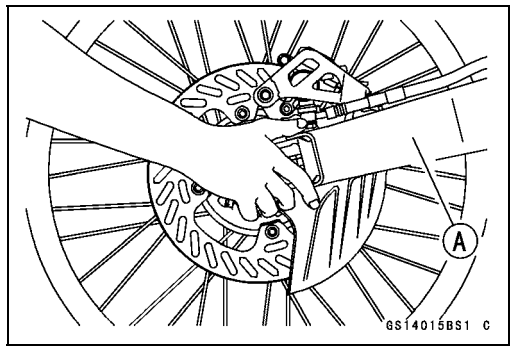
★If no oil is drawn out, there is insufficient oil in the outer tube. Pour in enough oil, then drawn out the excess oil.

- Install the parts removed (see Front Fork Assembly in Suspension chapter).

Rear Shock Absorber Oil Change

- Refer to the Rear Suspension (Uni-Trak) section in the Suspension chapter for Rear Shock Absorber Disassembly (Oil Change) and Assembly.

Uni-Trak Linkage Inspection



- Check the uni-trak component parts for wear periodically, or whenever excessive play is suspected.
- Using the jack under the frame, raise the rear wheel off the ground.

Special Tool - Jack: 57001-1238

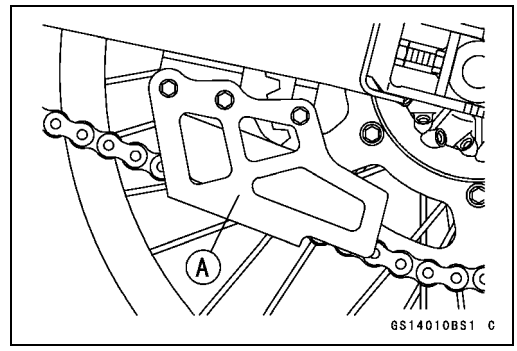
- Push and pull on the swingarm [A], up and down, to check for wear.

★A small amount of play on the swingarm is normal and no corrective action is needed. However, if excessive play is felt, remove the uni-trak parts from the frame and check for wear.

Periodic Maintenance Procedures

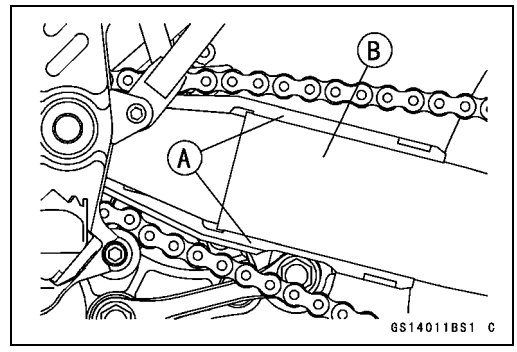
Chain Guide Wear Inspection

- Visually inspect the drive chain guide [A] and replace it if excessively worn or damaged.



Chain Slipper Wear Inspection

- Visually inspect the upper and lower chain slippers [A] on the swingarm [B] and replace them if worn or damaged.



Steering

Steering Inspection

- Using the jack, raise the front wheel off the ground.

Special Tool - Jack: 57001-1238

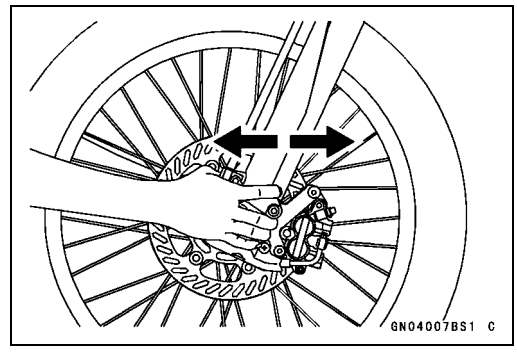
- With the front wheel pointing straight ahead, alternately nudge each end of the handlebar. The front wheel should swing fully left and right from the force of gravity until the fork hits the stop.

★If the steering binds or catches before the stop, check the routing of the cables, hoses, and harnesses.

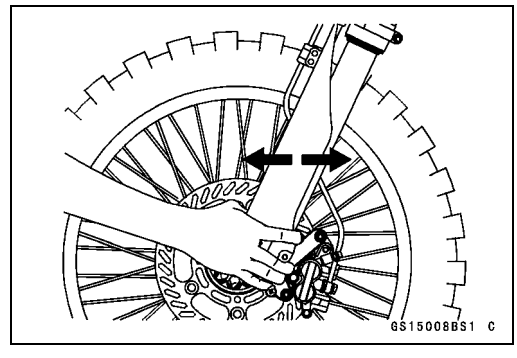
★If the steering feels tight, adjust or lubricate the steering.

- Feel for steering looseness by pushing and pulling the forks.

★If you feel looseness, adjust the steering.



- For KX125/250-M2 model ~; as shown in the figure.



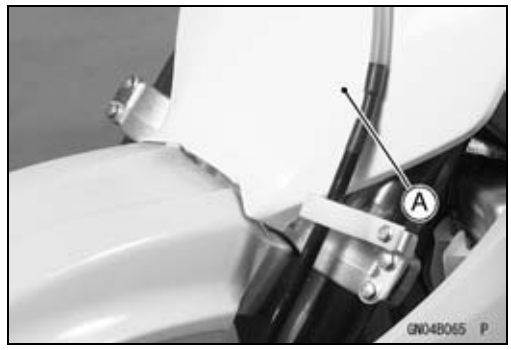
Steering Adjustment

- Using the jack, raise the front wheel off the ground.

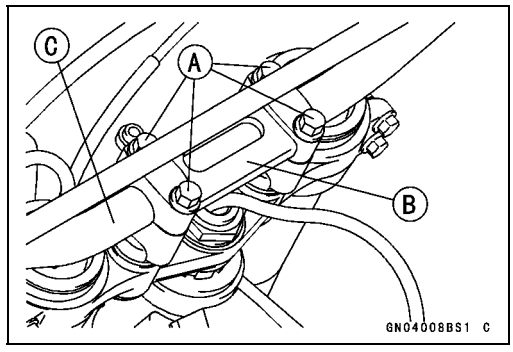
Special Tool - Jack: 57001-1238

Periodic Maintenance Procedures

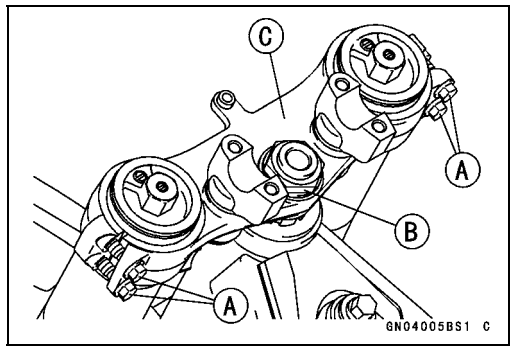
● Loosen the front fork lower clamp bolts [A].



● Remove:
Handlebar Clamp Bolts [A]
Handlebar Clamp [B]
Handle Bar [C]



● Loosen the front fork upper clamp bolts [A], and remove the steering stem head nut [B] and steering stem head [C].

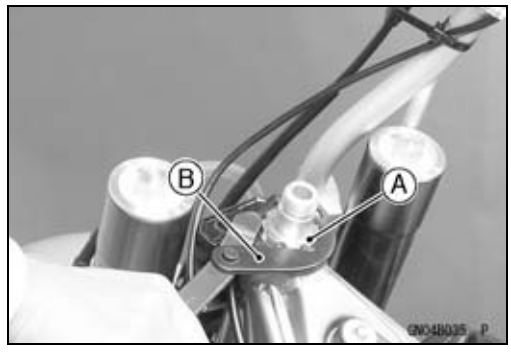


● Turn the steering stem locknut [A] with the steering stem nut wrench [B] to obtain the proper adjustment.
★If the steering is too tight, loosen the stem locknut a fraction of a turn; if the steering is too loose, tighten the locknut a fraction of a turn.

Special Tool - Steering Stem Nut Wrench: 57001-1100

NOTE

○*Turn the locknut 1/8 turn at a time maximum.*



● Install the steering stem head.
● Tighten the following:

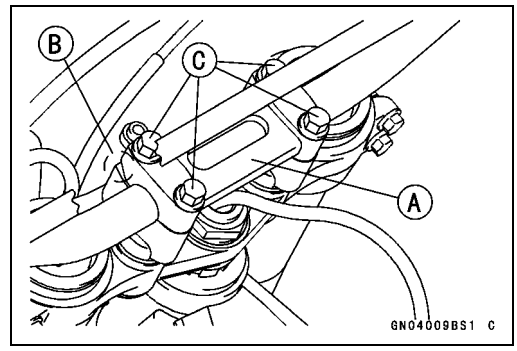
Torque - Steering Stem Head Nut: 78 N·m (8.0 kgf·m, 58 ft·lb)
Front Fork Clamp Bolts:Upper: 20 N·m (2.0 kgf·m, 14.5 ft·lb)
Lower: 20 N·m (2.0 kgf·m, 14.5 ft·lb)

NOTE

○*Tighten the two clamp bolts alternately two times to ensure even tightening torque.*

● Check the steering again.
★If the steering is too tight or too loose, repeat the adjustment as mentioned above.

Periodic Maintenance Procedures

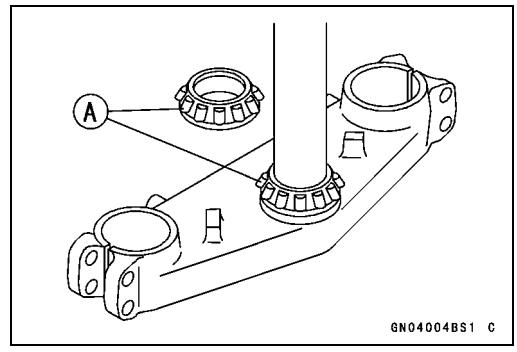


- Install the handlebar clamp [A] together with the handlebar so that the cut side [B] on the clamp points at the front.
- Tighten the handlebar clamp bolts [C].

Torque - Handlebar Clamp Bolts: 25 N·m (2.5 kgf·m, 18 ft·lb)

○Tighten the clamp bolts, rear first and then the front. If the handlebar clamp is correctly installed, there will be no gap at the rear and a gap at the front after tightening.

- Install the number plate.



Stem Bearing Lubrication

- Remove the steering stem (see Steering Stem Removal in Steering chapter).
- Using a high-flash point solvent, wash the upper and lower tapered rollers in the cages, and wipe the upper and lower outer races, which are press-fitted into the frame head pipe, clean off grease and dirt.
- Visually check the outer races and the rollers.

★Replace the bearing assemblies if they show wear or damage.

- Pack the upper and lower tapered roller bearings [A] in the cages with grease, and apply a light coat of grease to the upper and lower outer races.
- Install the steering stem, and adjust the steering (see Steering Stem, Stem Bearing Installation, Steering Adjustment in Steering chapter).

Electrical System

Spark Plug Cleaning and Inspection

- Remove the spark plug, and visually inspect it.
- Clean the spark plug, preferably in a sandblasting device, and then clean off any abrasive particles. The plug may also be cleaned using a high-flash point solvent and a wire brush or other suitable tool.

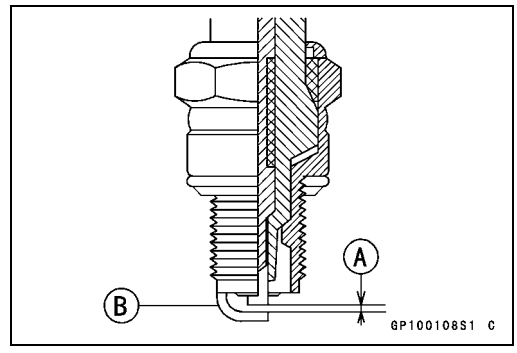
★If the spark plug electrodes are corroded or damaged, or if the insulator is cracked, replace the plug. Use the standard spark plug.

Spark Plug Gap Inspection

- Measure the gap [A] with a wire-type thickness gauge.

★If the gap is incorrect, carefully bend the side electrode [B] with a suitable tool to obtain the correct gap.

Spark Plug Gap
Standard 0.7 ~ 0.8 mm (0.028 ~ 0.031 in.)



Periodic Maintenance Procedures

General Lubrication

Lubrication

- Before lubricating each part, clean off any rusty spots with rust remover and wipe off any grease, oil, dirt, or grime.
- Lubricate the points listed below with indicated lubricant.

NOTE

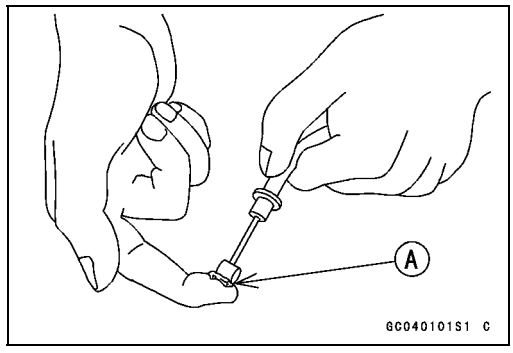
○*Whenever the vehicle has been operated under wet or rainy conditions, or especially after using a high-pressure water spray, perform the general lubrication.*

Pivots: Lubricate with Motor Oil

Clutch Lever
Brake Lever
Kick Pedal
Shift Pedal
Rear Brake Rod Joint
Drive Chain

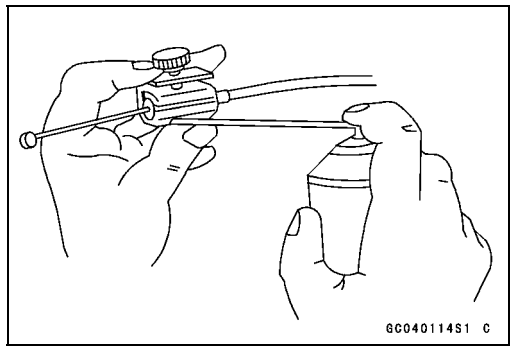
Points: Lubricate with Grease.

Clutch Inner Cable Upper and Lower Ends [A]
Throttle Inner Cable Upper End
Swingarm Pivot
Tie-Rod Pivot
Rocker Arm Pivot
Steering Stem Bearing



Cables: Lubricate with Rust Inhibitor.

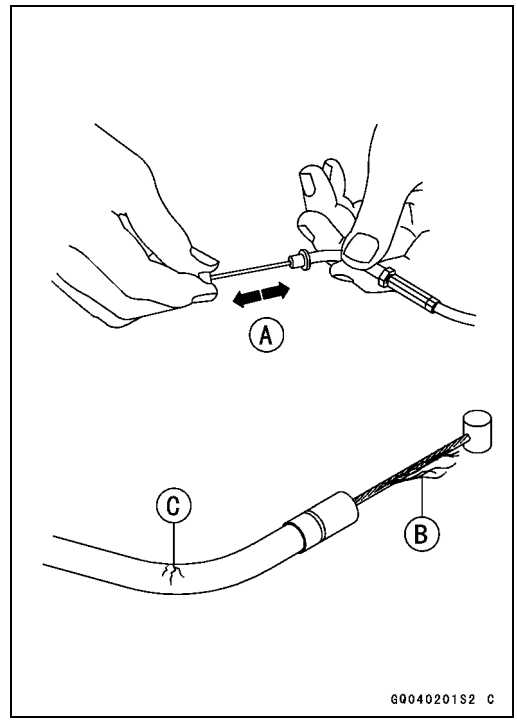
Throttle Cable
Clutch Cable



Periodic Maintenance Procedures

- With the cable disconnected at the both ends, the cable should move freely [A] within the cable housing.

★If cable movement is not free after lubricating, if the cable is frayed [B], or if the cable housing is kinked [C], replace the cable.



Periodic Maintenance Procedures

Nut, Bolt, and Fastener Tightness

Tightness Inspection

- Check the tightness of bolts and nuts listed here. Also, check to see that each cotter pin is in place and in good condition.

NOTE

○*For the engine fasteners, check the tightness of them when the engine is cold (at room temperature).*

★If there are loose fasteners, retorque them to the specified torque following the specified tightening sequence. Refer to the appropriate chapter for torque specifications. If torque specifications are not in the appropriate chapter, see the Standard Torque Table. For each fastener, first loosen it by 1/2 turn, then tighten it.

★If cotter pins are damaged, replace them with new ones.

Nut, Bolt and Fastener to be checked

Wheels:
- Spoke Nipples
- Front Axle Nut
- Rear Axle Nut Cotter Pin
- Rear Axle Nut

Final Drive:
- Chain Adjuster Locknuts
- Rear Sprocket Nuts

Brakes:
- Front Master Cylinder Clamp Bolts
- Caliper Mounting Bolts (Front)
- Rear Master Cylinder Mounting Bolts
- Rear Master Cylinder Joint Cotter Pin
- Brake Lever Pivot Nut
- Brake Pedal Bolt

Suspension:
- Front Fork Clamp Bolts
- Front Fender Mounting Bolt
- Rear Shock Absorber Mounting Nuts
- Swingarm Pivot Shaft Nut
- Swingarm Pivot Shaft Locknut
- Uni-Trak Link Nuts

Steering:
- Stem Head Nut
- Handlebar Clamp Bolts

Engine:
- Engine Mounting Nuts
- Engine Bracket Nuts
- Cylinder Head Nuts
- Shift Pedal Bolt
- Exhaust Pipe Holder Nuts
- Muffler Bolt and Nut
- Kick Pedal Bolt

Others:
- Rear Frame Mounting Bolts

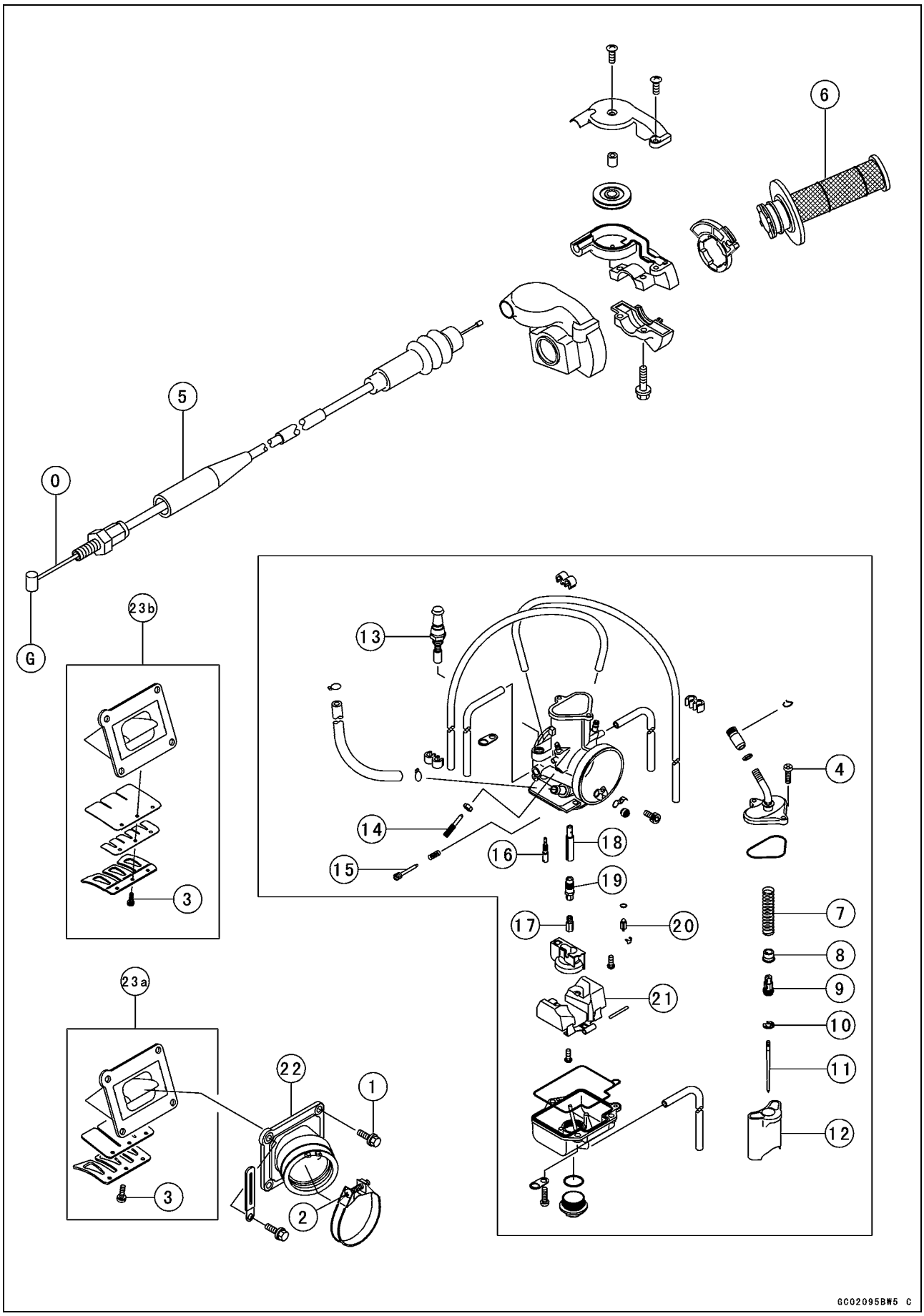
Fuel System

Table of Contents

Exploded View 3-2
Specifications 3-8
Special Tools 3-9
Throttle Grip and Cable 3-10
  Free Play Inspection 3-10
  Free Play Adjustment 3-10
  Throttle Cable Installation 3-10
  Cable Lubrication 3-10
  Cable Inspection 3-10
Carburetor 3-11
  Idle Speed Inspection 3-11
  Idle Speed Adjustment 3-11
  Service Fuel Level Inspection 3-11
  Service Fuel Level Adjustment 3-12
  Carburetor Removal 3-13
  Carburetor Installation 3-15
  Fuel Inspection 3-15
  Carburetor Disassembly 3-16
  Carburetor Assembly 3-18
  Carburetor Cleaning 3-19
  Carburetor Inspection 3-19
Air Cleaner 3-21
  Housing Removal 3-21
  Air Cleaner Housing Installation 3-21
  Element Removal 3-21
  Element Installation 3-21
  Element Cleaning and Inspection 3-22
Fuel Tank 3-23
  Fuel Tank Removal 3-23
  Fuel Tank Installation 3-23
  Fuel Tap Removal 3-23
  Fuel Tap Installation 3-23
  Fuel Tap Inspection 3-24
  Fuel Tank and Tap Cleaning 3-24
Reed Valve 3-25
  Reed Valve Removal 3-25
  Reed Valve Installation 3-25
  Reed Valve Inspection 3-26

Exploded View

KX125M:



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Carburetor Holder Mounting Bolts	8.8	0.9	78 in·lb	
2	Carburetor Holding Clamp Screws	1.4	0.14	12 in·lb	
3	Reed Valve Screws	1.0	0.1	8.8 in·lb	
4	Carburetor Top Cover Screws	3.0	0.3	26 in·lb	

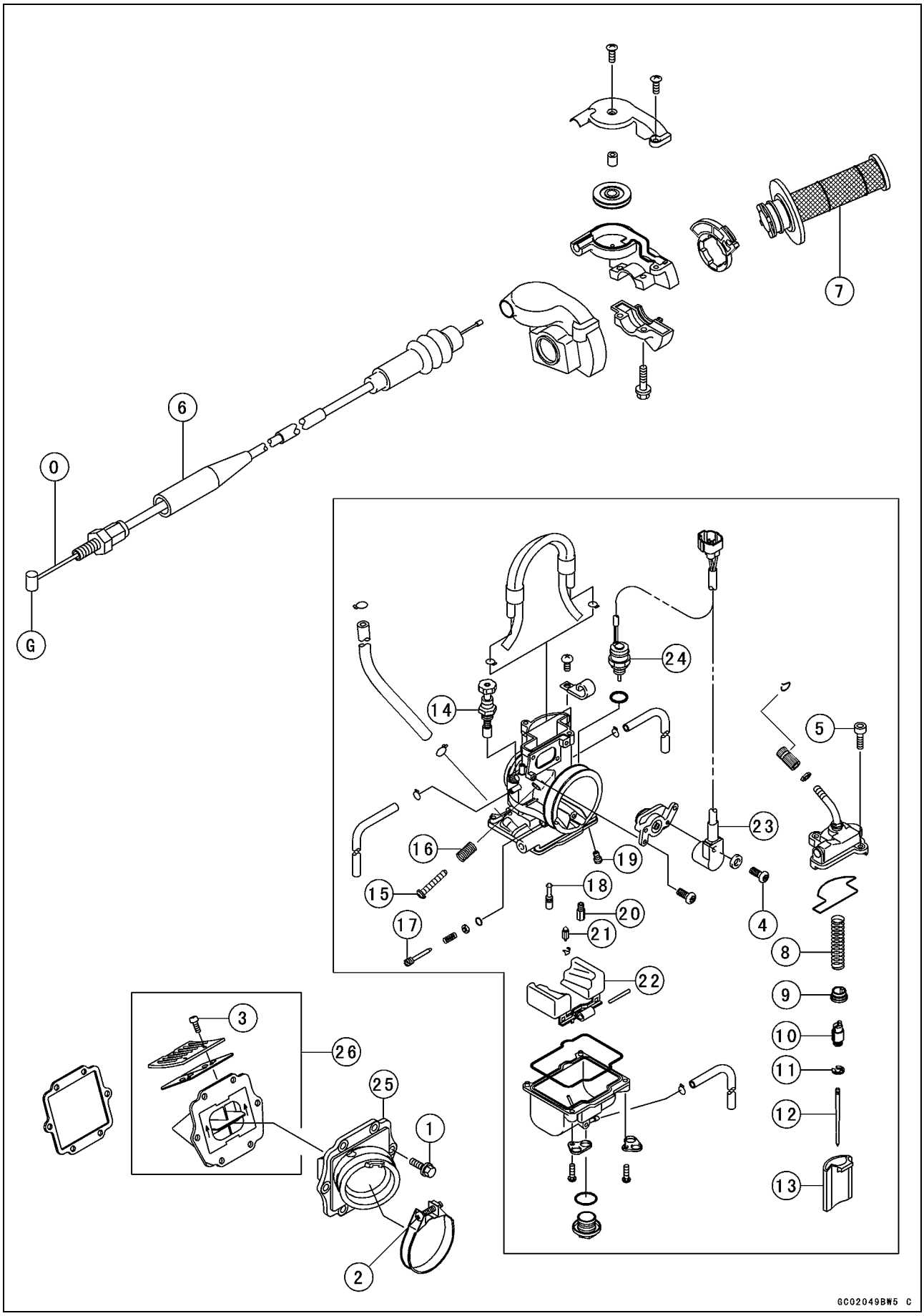
5. Throttle Cable
6. Throttle Grip
7. Spring
8. Retainer
9. Connector
10. Jet Needle Clip
11. Jet Needle
12. Throttle Valve
13. Choke Knob
14. Idle Adjusting Screw
15. Air Screw
16. Slow Jet
17. Main Jet
18. Needle Jet
19. Main Jet Holder
20. Float Valve Needle
21. Float
22. Carburetor Holder

23a. Reed Valve (KX125-M1 Model)
23b. Reed Valve (KX125-M2 Model~)

O: Apply oil.
G: Apply grease.

Exploded View

KX250M:



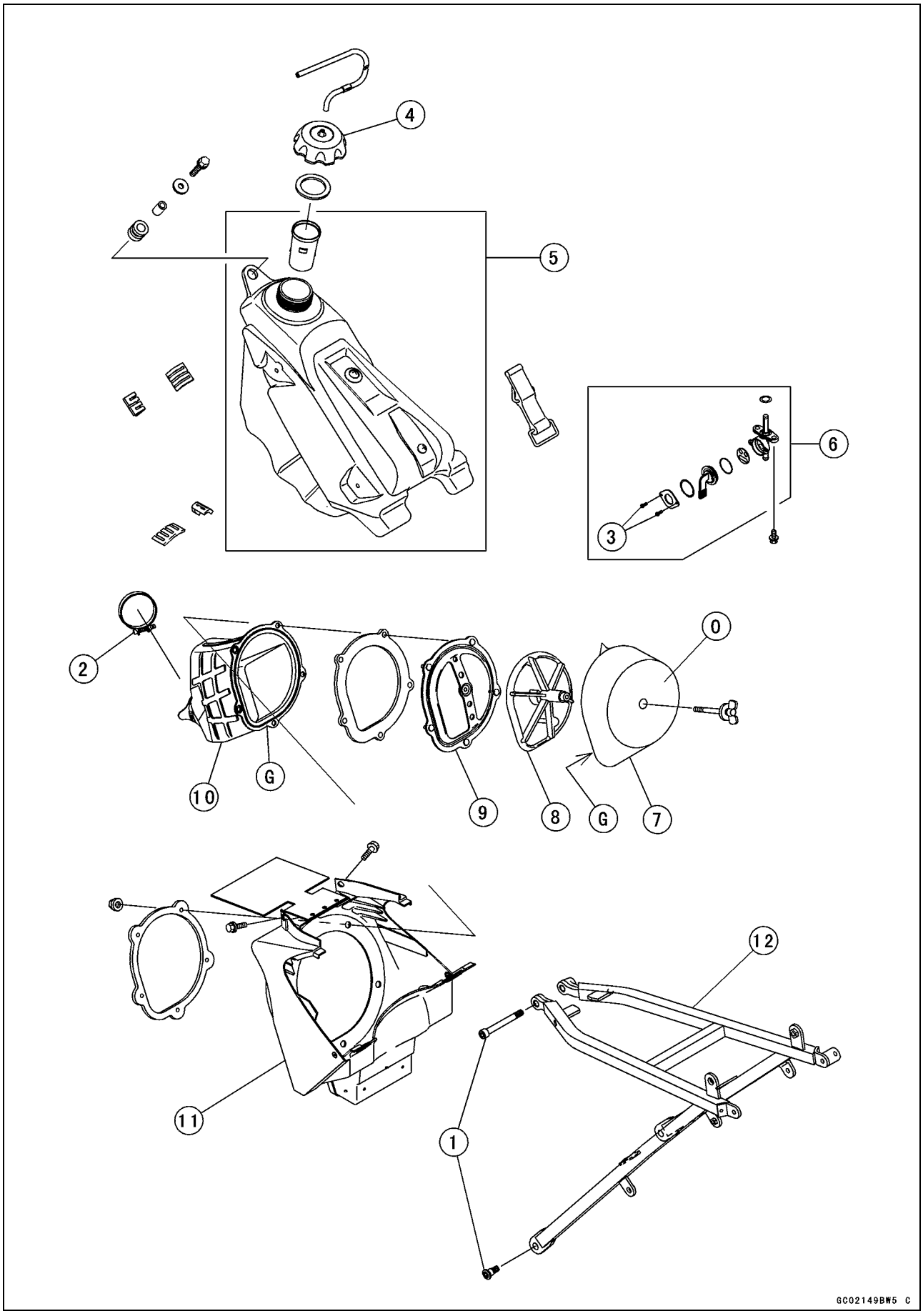
Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Carburetor Holder Mounting Bolts	8.8	0.9	78 in·lb	
2	Carburetor Holding Clamp Screws	1.4	0.14	12 in·lb	
3	Reed Valve Screws	1.0	0.1	8.8 in·lb	
4	Throttle Sensor Bolt	2.0	0.2	17 in·lb	
5	Carburetor Top Cover Allen Bolts	3.9	0.4	35 in·lb	

6. Throttle Cable
7. Throttle Grip
8. Spring
9. Retainer
10. Connector
11. Jet Needle Clip
12. Jet Needle
13. Throttle Valve
14. Choke Knob
15. Idle Adjusting Screw
16. Spring
17. Air Screw
18. Slow Jet
19. Power Jet
20. Main Jet
21. Float Valve Needle
22. Float
23. Throttle Sensor
24. Fuel Cut Valve
25. Carburetor Holder
26. Reed Valve

O: Apply oil.
G: Apply grease.

Exploded View



Exploded View

No	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Rear Frame Mounting Bolts	34	3.5	25	
2	Air Cleaner Duct Clamp Screw	1.4	0.14	12 in·lb	
3	Fuel Tap Plate Mounting Screws	0.8	0.08	7 inlb	

4. Fuel Tank Cap
5. Fuel Tank
6. Fuel Tap
7. Element
8. Frame
9. Holder
10. Air Cleaner Duct
11. Air Cleaner Housing
12. Rear Frame

G: Apply grease.
O: High-quality foam-air-filter oil.
R: Replacement Part

Specifications

KX125:

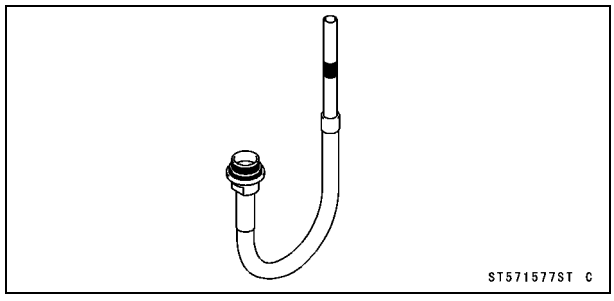
Item	Standard			Service Limit
	KX125-M1	KX125-M2	KX125-M3	
Carburetor				
Make/Type	MIKUNI TMX38χ			– – –
Main Jet:	#420			– – –
Throttle Valve Cutaway	#5.75			– – –
Jet Needle	6CHJ 11-82	6CHJ 10-82		– – –
Jet Needle Clip Position	3rd groove from the top			– – –
Slow Jet (Pilot Jet)	#40			– – –
Air Screw (Turns out)	2 1/2		1 1/2	– – –
Service Fuel Level (above the bottom edge of the carb. body)	10 ±1 mm (0.394 ±0.039 in.)			– – –
Float Height	9.5 ±1 mm (0.374 ±0.039 in.)			– – –

KX250:

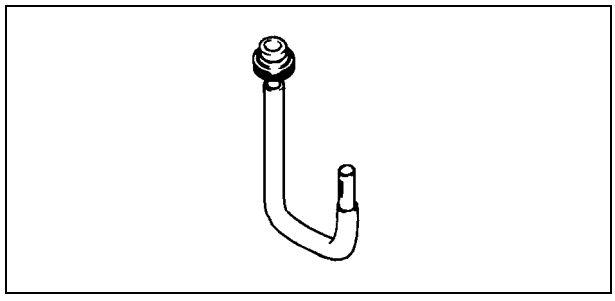
Item	Standard		Service Limit
	KX250-M1	KX250-M2	
Carburetor			
Make/Type	KEIHIN PWK38S		– – –
Main Jet:	#165		– – –
Power Jet:	#50		
Throttle Valve Cutaway	#8		– – –
Jet Needle	NAFH	NALF	– – –
Jet Needle Clip Position	2nd groove from the top		
Slow Jet (Pilot Jet)	#52		– – –
Air Screw (Turns out)	2	1 1/2	– – –
Service Fuel Level (above the bottom edge of the carb. body)	10.5 ±1 mm (0.413 ±0.039 in.)		– – –
Float Height	6.5 ±1 mm (0.256 ±0.039 in.)		– – –
Fuel Cut Valve	see Electrical System chapter		
Throttle Sensor	see Electrical System chapter		

Special Tools

Fuel Level Gauge:
57001-1577



Fuel Level Gauge, M18 × 1.0:
57001-122



Throttle Grip and Cable

If the throttle grip has excessive free play due to cable stretch or misadjustment, there will be a delay in throttle response. Also, the throttle valve may not open fully at full throttle. On the other hand, if the throttle grip has no play, the throttle will be hard to control, and the idle speed will be erratic. Check the throttle grip play periodically in accordance with the Periodic Maintenance Chart, and adjust the play if necessary.

The throttle cable routing is shown in Cable, Harness, Hose Routing in the Appendix chapter.

Free Play Inspection

- Refer to the Throttle Grip Free Play Inspection in the Periodic Maintenance chapter.

Free Play Adjustment

- Refer to the Throttle Grip Free Play Adjustment in the Periodic Maintenance chapter.

Throttle Cable Installation

- Install the throttle cable in accordance with the Cable, Harness, Hose Routing section in the Appendix chapter.
- After the installation, adjust each cable properly.

⚠ WARNING

Operation with an incorrectly routed or improperly adjusted cable could result in an unsafe riding condition.

Cable Lubrication

- Whenever the throttle cable is removed or in accordance with the Periodic Maintenance Chart, lubricate the these cables, Refer to General Lubrication in the Periodic Maintenance chapter.

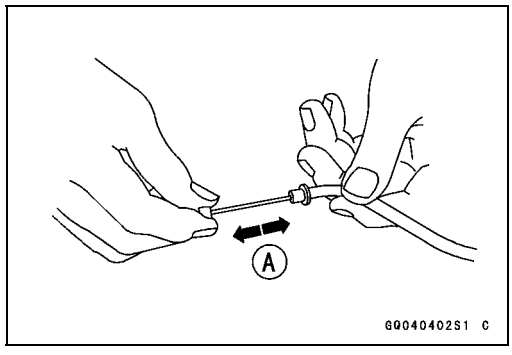
○Apply a thin coating of grease to the cable upper or lower ends.

○Use a commercially available pressure cable lubricator to lubricate these cables.

Cable Inspection

- With the throttle cable disconnected at both ends, the cable should move freely [A] within the cable housing.

★If cable movement is not free after lubricating, if the cable is frayed, or if the housing is kinked, replace the cable.



Carburetor

Since the carburetor regulates and mixes the fuel and air going to the engine, there are two general types of carburetor trouble: too rich a mixture (too much fuel), and too lean a mixture (too little fuel). Such trouble can be caused by dirt, wear, maladjustment, or improper fuel level in the float chamber. A dirty or damaged air cleaner can also alter the fuel to air ratio.

Idle Speed Inspection

- Refer to the Idle Speed Inspection in the Periodic Maintenance chapter.

Idle Speed Adjustment

- Refer to the Idle Speed Adjustment in the Periodic Maintenance chapter.

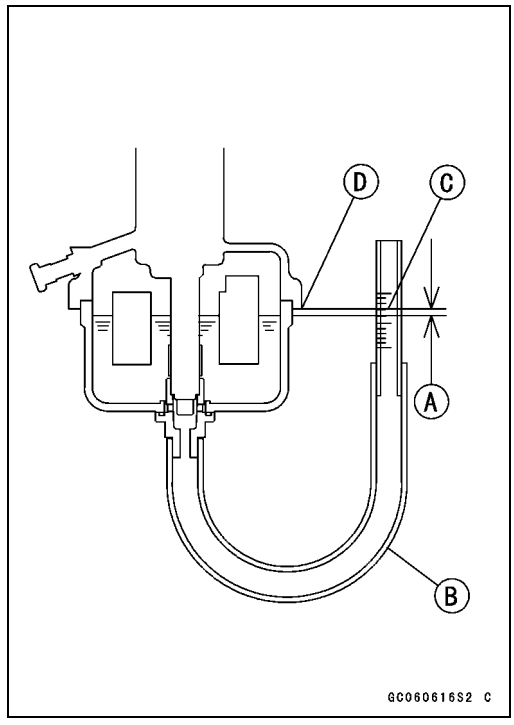
Service Fuel Level Inspection

⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Turn the fuel tap to the OFF position.
- Remove the fuel tank.
- Remove the carburetor, and hold it in true vertical position on a stand. The fuel hose and carburetor cable do not have to be removed to inspect the fuel level [A].
- Put the fuel tank on a bench, and connect the fuel tap to the carburetor using a suitable hose.
- Remove the drain plug from the bottom of the float bowl, and screw a fuel level gauge [B] into the plug hole.

Special Tools - Fuel Level Gauge: 57001-1577 (KX125)
Fuel Level Gauge, M18 × 1.0: 57001-122 (KX250)



Carburetor

- Hold the gauge vertically against the side of the carburetor body so that the "zero" line [C] is several millimeters higher than the bottom edge [D] of the carburetor body.
- Turn the fuel tap to the ON position to feed fuel to the carburetor.
- Wait until the fuel level in the gauge settles.
- Keeping the gauge vertical, slowly lower the gauge until the "zero" line is even with the bottom edge of the carburetor body.

NOTE

○*Do not lower the "zero" line below the bottom edge of the carburetor body. If the gauge is lowered and then raised again, the fuel level measure shows somewhat higher than the actual fuel level. If the gauge is lowered too far, dump the fuel out of it into a suitable container and start the procedure over again.*

- Read the fuel level in the gauge and compare it to the specification.

Service Fuel Level
(above the bottom edge of the carb. body)
Standard: 10 ±1 mm (0.394 ±0.039 in.) (KX125)
10.5 ±1 mm (0.413 ±0.039 in.) (KX250)

★If the fuel level is incorrect, adjust it.
- Turn the fuel tap to the OFF position and remove the fuel level gauge.
- Install the drain plug on the bottom of the float bowl.

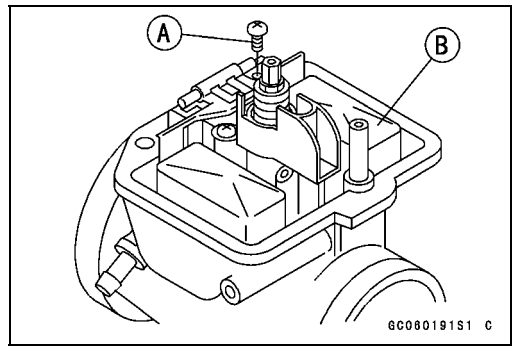
Service Fuel Level Adjustment

⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well-ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Remove the carburetor, and drain the fuel into a suitable container.
- Remove the float bowl.

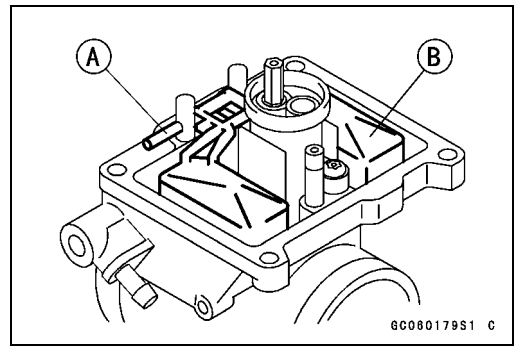
KX125:
- Unscrew the pivot pin screw [A] and remove the float [B].



Carburetor

KX250:

● Drive out the pivot pin [A] and remove the float [B].

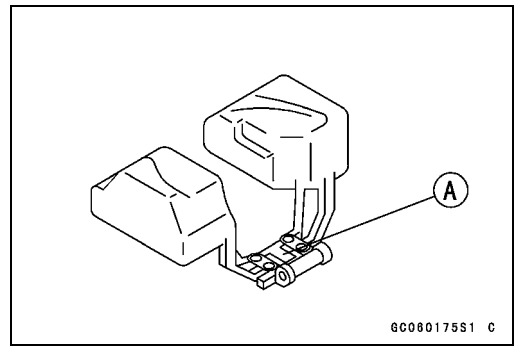


● Bend the tang [A] on the float arm very slightly to change the float height. Increasing the float height lowers the fuel level and decreasing the float height raises the fuel level.

Float Height

Standard: 9.5 ±1 mm (0.374 ±0.039 in.) (KX125)

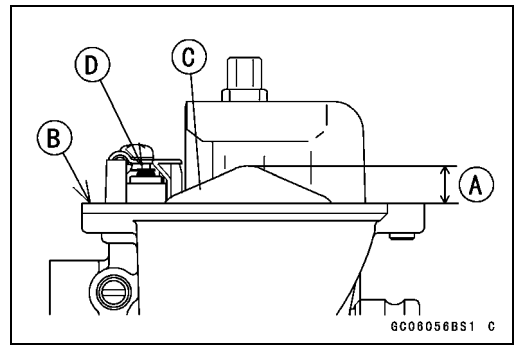
6.5 ±1 mm (0.256 ±0.039 in.) (KX250)



NOTE

○*Float height [A] is the distance from the float bowl mating surface [B] of the carburetor body (with the gasket removed) to the top of the float [C]. Measure the height with the carburetor upside down.*

○*Do not push the needle rod [D] in during the float height measurement.*



● Assemble the carburetor, and recheck the fuel level.

★If the fuel level cannot be adjusted by this method, the float or the float valve is damaged.

Carburetor Removal

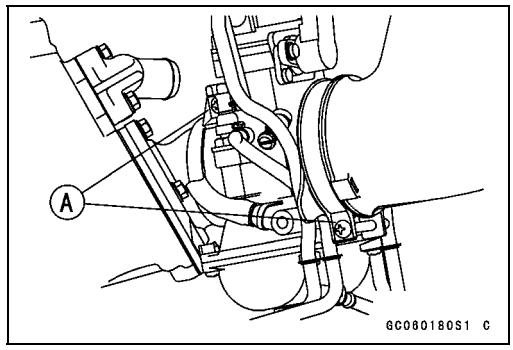
⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well-ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

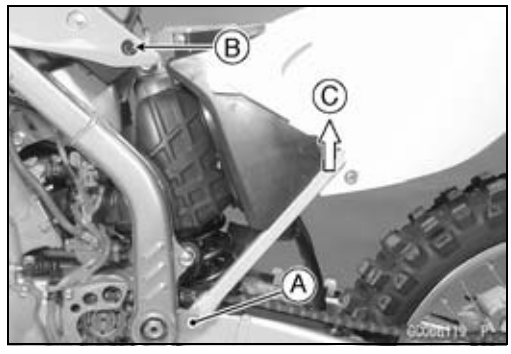
● Turn the fuel tap to the OFF position and pull the fuel hose off the tap.

Carburetor

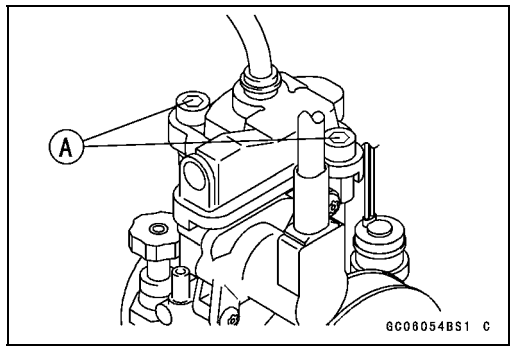
- For KX250, disconnect the carburetor lead connector.
- Loosen the clamps [A], and remove the carburetor from the end of the air cleaner duct, and then pull it out of the carburetor holder.



★If necessary, do the following procedure.
○Remove:
Seat
Right Side Cover
Silencer
Rear Frame Bolt [A]
○Loosen the rear frame bolts [B], pull up the rear frame [C] with the air cleaner housing and remove the carburetor.



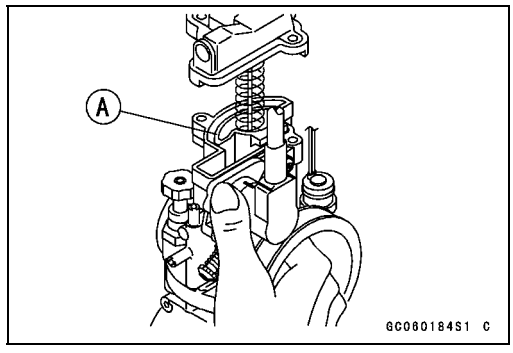
- Drain the fuel from the float bowl by removing the drain plug. After draining, install the drain plug securely.
- Unscrew the carburetor cap screws (KX125) or bolts (KX250) [A].



- Pull out the throttle valve assembly [A].

CAUTION

If the throttle valve is not removed from the cable, wrap it in a clean cloth to avoid damage.



- After removing the carburetor, push a clean, lint-free towel into the carburetor holder and the air cleaner duct to keep dirt or other foreign material from entering.

⚠ WARNING

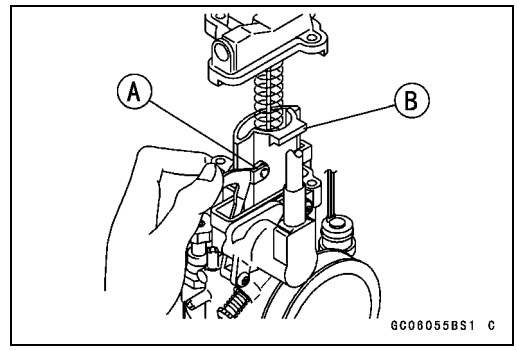
If dirt or dust is allowed to pass through into the carburetor, the throttle may become stuck, possibly causing an accident.

CAUTION

If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

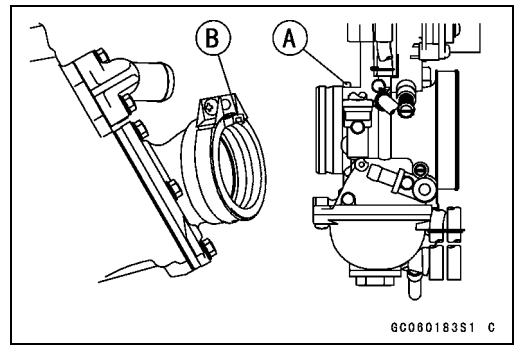
Carburetor

Carburetor Installation



- For KX250, lifting up the link shaft end [A] of the throttle sensor install the throttle valve assembly.
- Being careful not to bend or otherwise damage the jet needle. Check to see that the throttle valve [B] goes all the way down into the carburetor body, and slides smoothly.
- Tighten:

Torque - Carburetor Top Cover Screws: 3.0 N·m (0.3 kgf·m, 26 in·lb) (KX125)
Carburetor Top Cover Allen Bolts: 3.9 N·m (0.4 kgf·m, 35 in·lb) (KX250)



- When installing the carburetor into the carburetor holder, align the center [A] of the carburetor with the groove [B] on the holder.
- Tighten the clamps securely.

Torque - Carburetor Holding Clamp Screw: 1.4 N·m (0.14 kgf·m, 12 in·lb)

- Route the air vent and overflow hoses properly (see Appendix chapter).

CAUTION

Always keep the hoses free of obstruction, and make sure they do not get pinched by the chain or shock absorber.

- For KX250, connect the carburetor lead connector.
- After installing the carburetor, do the following.

○Turn the fuel tap to the ON position, and check for fuel leakage from the carburetor.

⚠ WARNING

Fuel spilled from the carburetor is hazardous.

○Adjust the following items if necessary:
Throttle Cable
Idle Speed

Fuel Inspection

⚠ WARNING

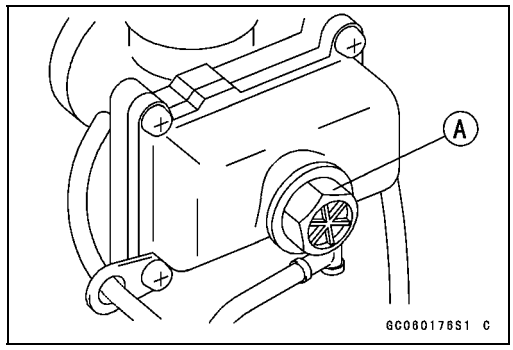
Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well-ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

Carburetor

- Turn the fuel tap to the OFF position.
- Remove the carburetor.
- Place a suitable container beneath the carburetor.
- Remove the drain plug [A] from the bottom of the float bowl and check for water or dirt in the fuel.

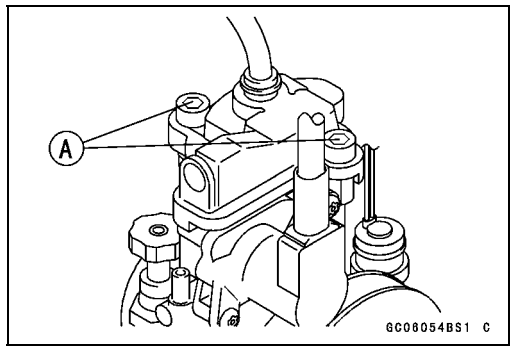
★If any water or dirt comes out, clean the carburetor, fuel tap and fuel tank (see this chapter).

- Install the drain plug on the float bowl, and tighten it securely.
- Install the carburetor.

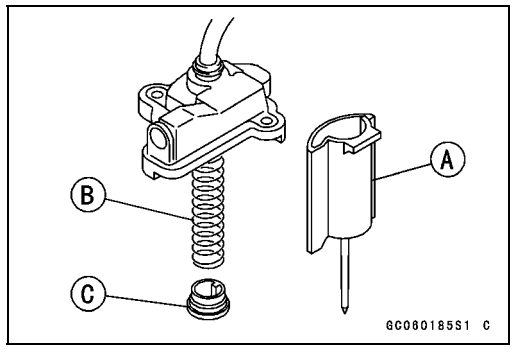


Carburetor Disassembly

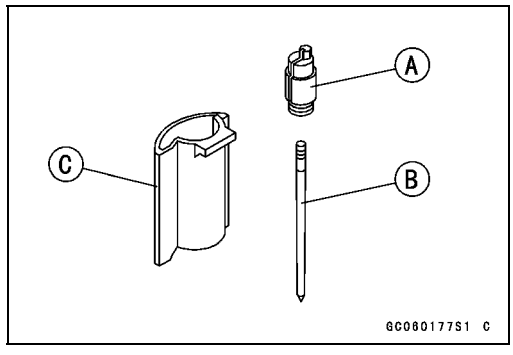
- Remove the carburetor.
- Unscrew the carburetor top cap screws (KX125) or bolts (KX250) [A].
- Pull out the throttle valve assembly.



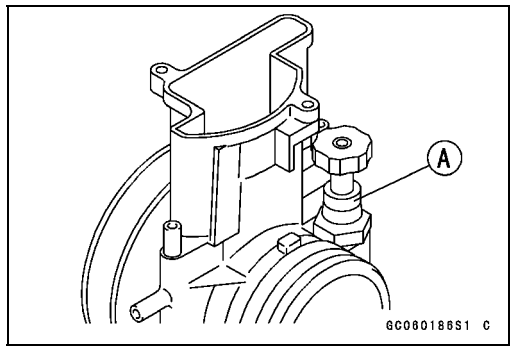
- Remove the throttle valve assembly [A], spring [B], retainer [C] and carburetor cap from the carburetor cable lower end.



- Disassemble the throttle valve assembly; connector [A], jet needle with circlip [B] and throttle valve [C].

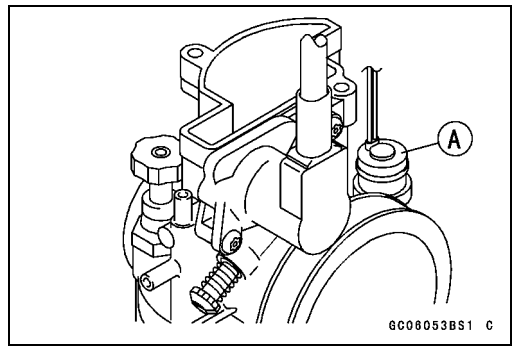


- Remove the choke knob/starter plunger assembly [A] from the carburetor.

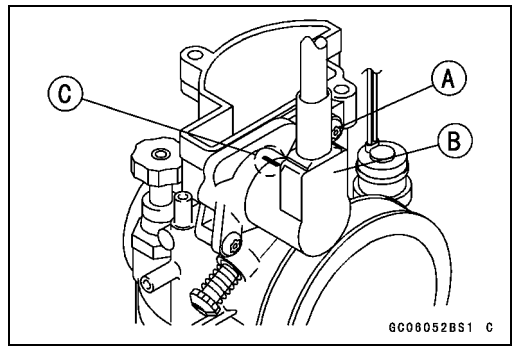


Carburetor

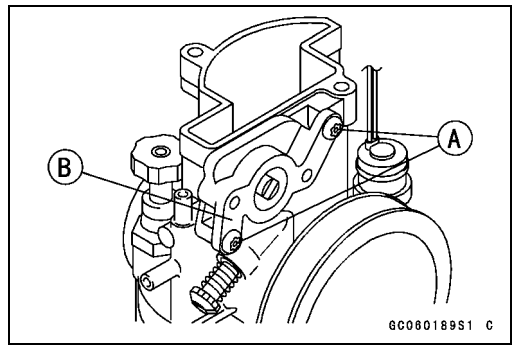
(For KX250)
- Remove the fuel cut valve [A] from the carburetor.



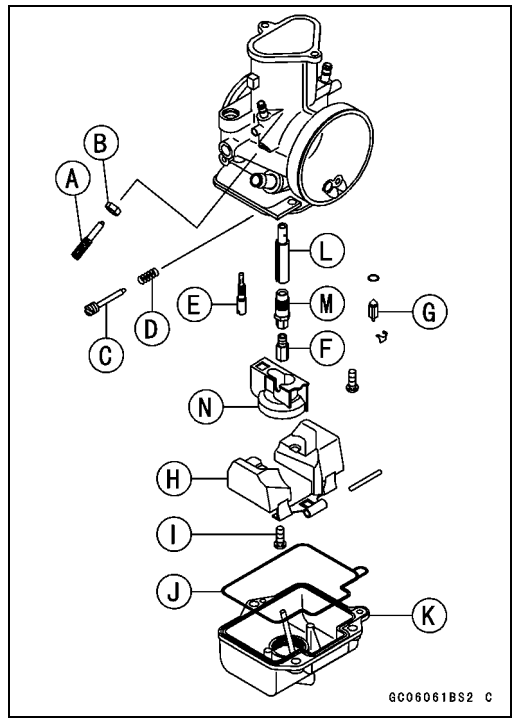
(For KX250)
- Remove the throttle sensor mounting bolt [A].
- Before removing the throttle sensor [B], mark [C] the carburetor body and sensor so that it can be installed later in the same position.



(For KX250)
- Remove the throttle sensor link assembly screws [A].
- Remove the link assembly [B].



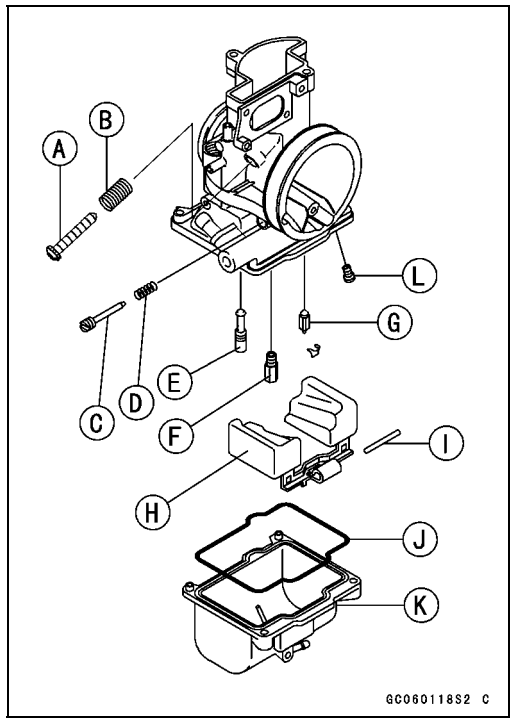
KX125:
- Remove the following parts from the carburetor body.
  - A. Idle Adjusting Screw
  - B. Nut
  - C. Air Screw
  - D. Spring
  - E. Slow Jet
  - F. Main Jet
  - G. Float Valve Needle
  - H. Float
  - I. Pin Screw
  - J. O-ring
  - K. Float Bowl
  - L. Needle Jet
  - M. Main Jet Holder
  - N. Float Plate



Carburetor

KX250:

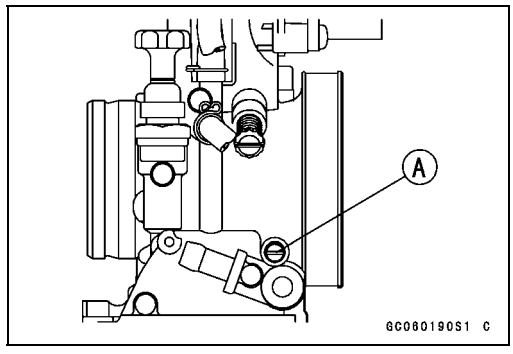
- Remove the following parts from the carburetor body.
  - A. Idle Adjusting Screw
  - B. Spring
  - C. Air Screw
  - D. Spring
  - E. Slow Jet
  - F. Main Jet
  - G. Float Valve Needle
  - H. Float
  - I. Pin
  - J. O-ring
  - K. Float Bowl
  - L. Power Jet



Carburetor Assembly

- Clean the disassembly parts before assembling.
- Replace the O-rings with a new one if it is deteriorated or damaged.
- Turn in the air screw [A] fully but not tightly, and then back it out the specified number of turns. (see Specifications of this chapter)
- For KX250, install the throttle sensor so that the marks aligns and check it position (see Electrical System chapter).

Torque - Throttle Sensor bolt: 20 N·m (0.2 kgf·m, 17 in·lb)



Carburetor

Carburetor Cleaning

⚠ WARNING

Clean the carburetor in a well-ventilated area, and take care that there is no spark or flame anywhere near the working area; this includes any appliance with a pilot light. Because of the danger of highly flammable liquids, do not use gasoline or low flash -point solvent to clean the carburetor.

- Make sure the fuel tap is in the OFF position.
- Remove the carburetor.
- Drain the fuel in the carburetor.
- Disassemble the carburetor.

CAUTION

Do not use compressed air on an assembled carburetor, the float may be deformed by the pressure. Remove as many rubber or plastic parts from the carburetor as possible before cleaning the carburetor with a cleaning solution. This will prevent damage or deterioration of the parts. Do not use a strong carburetor cleaning solution which could attack the plastic parts; instead, use a mild high flash-point cleaning solution safe for plastic parts. Do not use wire or any other hard instrument to clean carburetor parts, especially jets, as they may be damaged.

- Immerse all the metal parts in a carburetor cleaning solution.
- Rinse the parts in water.
- After the parts are cleaned, dry them with compressed air.
- Blow through the air and fuel passages with compressed air.
- Assemble the carburetor, and install it on the motorcycle.

Carburetor Inspection

⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well-ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

Carburetor

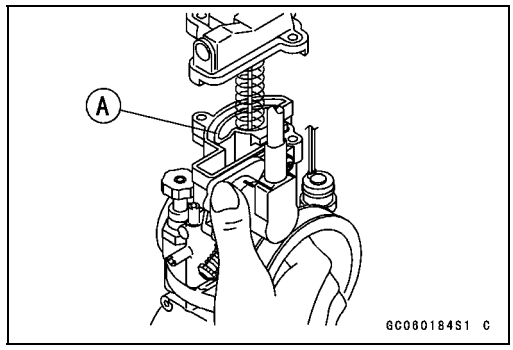
- Remove the carburetor.
- Before disassembling the carburetor, check the fuel level (see Fuel Level Inspection).

★If the fuel level is incorrect, inspect the rest of the carburetor before correcting it.

- Pull the carburetor cable to check that the throttle valve [A] moves smoothly and returns by spring pressure.

★If the throttle valve does not move smoothly. Replace the carburetor.

- Disassemble the carburetor.
- Clean the carburetor.

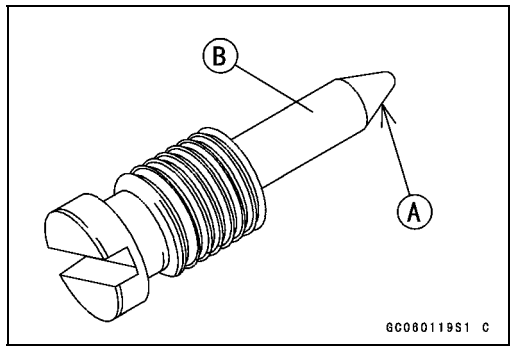


- Check the O-rings on the float bowl, pilot screw, and throttle sensor are in good condition.

★If any of the O-rings are not in good condition, replace them.

- Check the tapered portion [A] of the pilot screw [B] for wear or damage.

★If the pilot screw is worn or damaged on the tapered portion, it will prevent the engine from idling smoothly. Replace it.



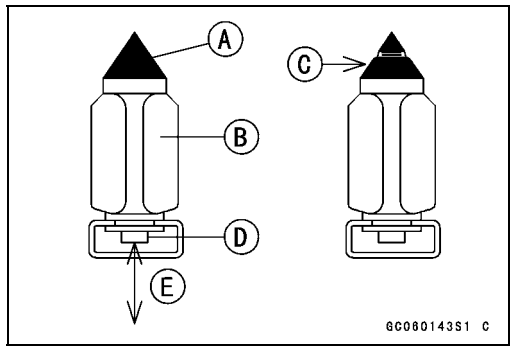
- Remove the float valve needle.
- Check the plastic tip [A] of the float valve needle [B] for wear.

★If the needle is worn as shown right [C], replace the valve needle.

- Push the rod [D] in the valve needle, then release it.

★If the rod does not come out fully by spring tension, replace the valve needle.

Push and release [E]



- Remove the slow jet.
- Check the slow jet for any damage.

★If the slow jet is damaged, replace it with a new one.

- Remove the throttle valve and jet needle.
- Inspect the outside of the throttle valve for scratches and abnormal wear.

★If it is badly scratched or worn, replace the throttle valve.

- Inspect the inside of the carburetor body for these same faults.

★If it is badly scratched or worn, replace the entire carburetor.

- Check the jet needle for wear.

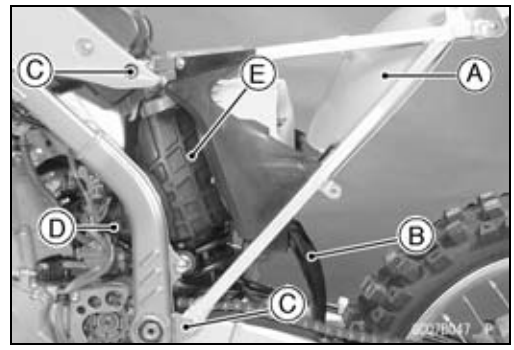
★A worn jet needle should be replaced.

- Clean the fuel and air passages with a high flash-point solvent and compressed air.

Air Cleaner

Housing Removal

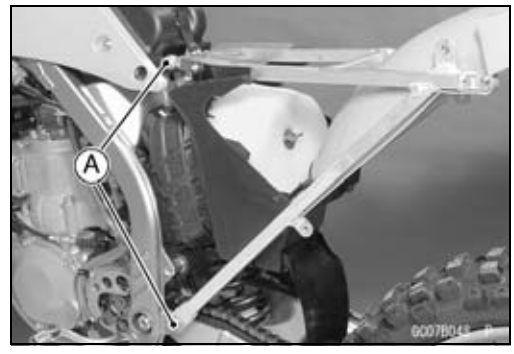
- Remove:
  Side Covers
  Seat
  Silencer (see Engine Top End chapter)
  Bolts and Rear Fender [A]
  Screws and Rear Flap [B]
  Rear Frame Bolts [C]
- Loosen the air cleaner duct clamp [D].
- Remove the air cleaner housing [E].



Air Cleaner Housing Installation

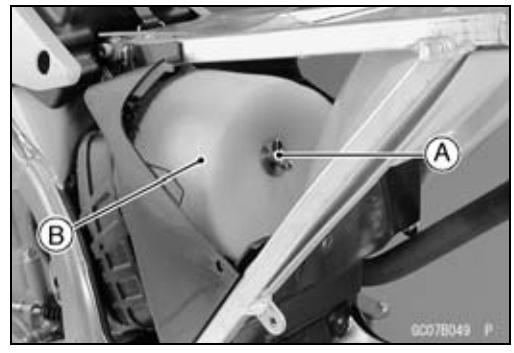
- Installation is the reverse of the removal.
- Tighten the rear frame mounting bolts [A].

Torque - Rear Frame Mounting Bolts: 34 N·m (3.5 kgf·m, 25 ft·lb)



Element Removal

- Remove the seat.
- Remove the wing bolt [A] and pull out the element [B].
- Stuff a clean, lint-free towel into the carburetor so no dirt is allowed to enter the carburetor.
- Wipe out the inside of the air cleaner housing with a clean damp towel.

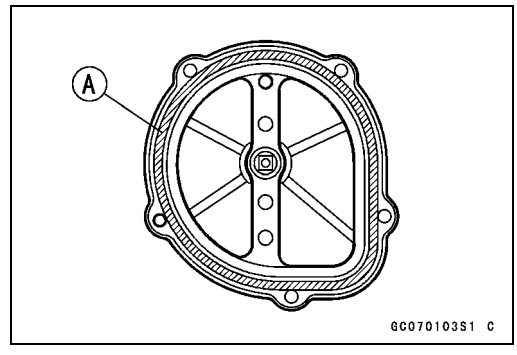


CAUTION

Check inside of the inlet tract and carburetor for dirt. If dirt is present, clean the intake tract and carburetor thoroughly. You may also need to replace the element and seal the housing and inlet tract.

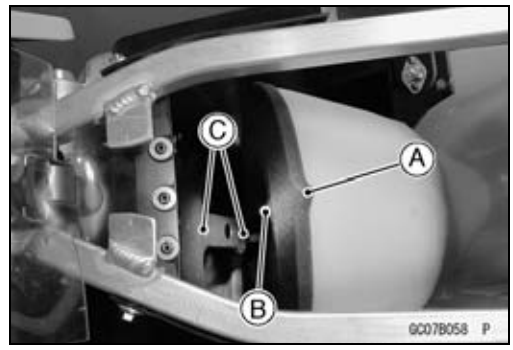
Element Installation

- When installing the element, coat the lip of the element with a thick layer of all purpose grease [A] to assure a complete seal against the air cleaner element base. Also, coat the base where the lip of the element fits.
- Apply grease to all connections and screw holes in the air cleaner housing and intake tract.
- Take out the towel from the carburetor securely.



Air Cleaner

- Install the element so that its tab [A] faces upward and fit the element projections [B] to the holes of the housing [C].



Element Cleaning and Inspection

- Refer to the Air Cleaner Element Cleaning and Inspection in the Periodic Maintenance chapter.

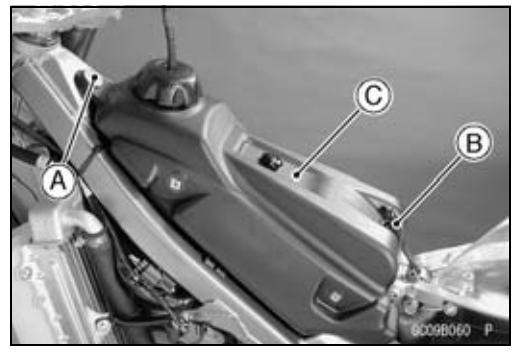
Fuel Tank

Fuel Tank Removal

⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Always stop the engine and do not smoke. Make sure the area is well-ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Remove:
  Radiator Shrouds
  Seat
- Turn the fuel tap to the OFF position.
- Pull the fuel hose off the fuel tap.
- Remove the fuel tank mounting bolt [A] and band [B].
- Remove the fuel tank [C].
- Drain the fuel tank.

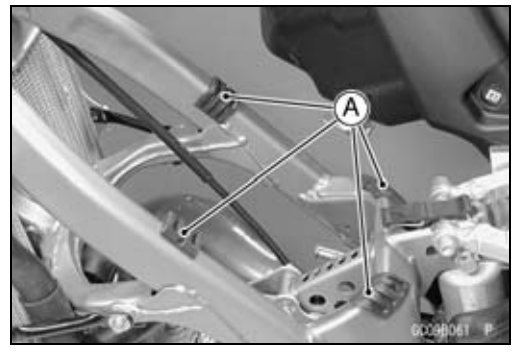


Fuel Tank Installation

- Check the rubber dampers [A] on the frame.

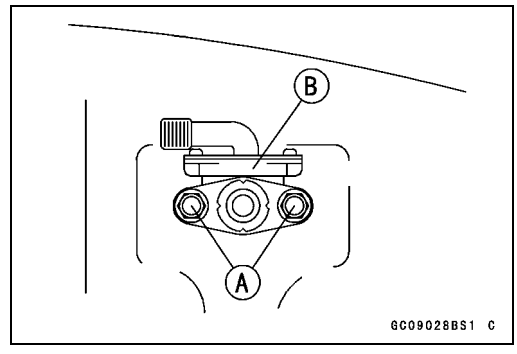
★If the dampers are damaged or deteriorated, replace them.

- Be sure the fuel hose is clamped to the fuel tap to prevent leaks.
- Insert the fuel tank breather hose outlet end into the steering stem hole (see Appendix chapter).



Fuel Tap Removal

- Remove the fuel tank and drain it.
- Remove the mounting bolts [A] and take out the fuel tap [B].



Fuel Tap Installation

- Be sure the O-ring is in good condition to prevent leaks.
- Be sure to clamp the fuel hose to the tap to prevent leaks.

Fuel Tank

Fuel Tap Inspection

- Refer to the in the Periodic Maintenance chapter.

Fuel Tank and Tap Cleaning

- Refer to the Fuel Tank and Tap Cleaning in the Periodic Maintenance chapter.

Reed Valve

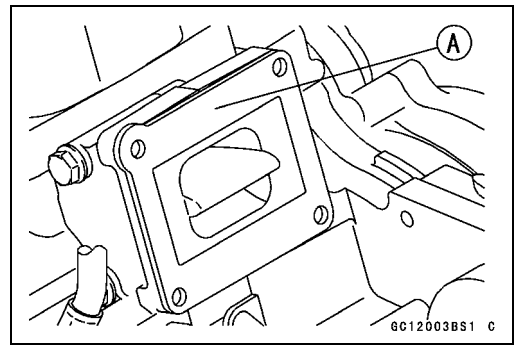
Reed Valve Removal

● Remove the reed valve in accordance with the following procedure.

KX125

○Remove the carburetor, holder mounting bolts, and carburetor holder.

○Remove the reed valve [A] out of the crankcase.

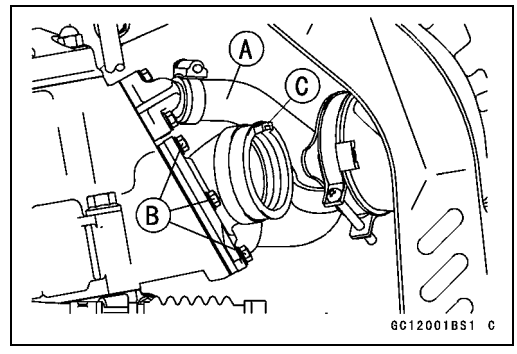


KX250

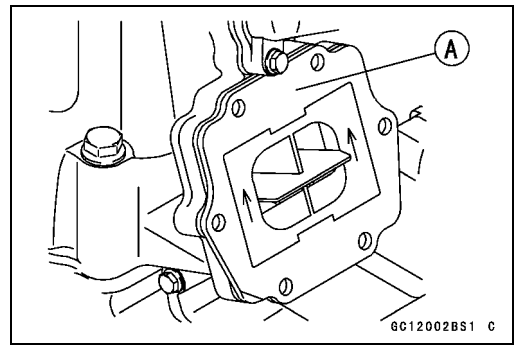
○Drain the coolant.

○Remove the carburetor and coolant hose [A].

○Remove the holder mounting bolts [B], and take off the carburetor holder [C].

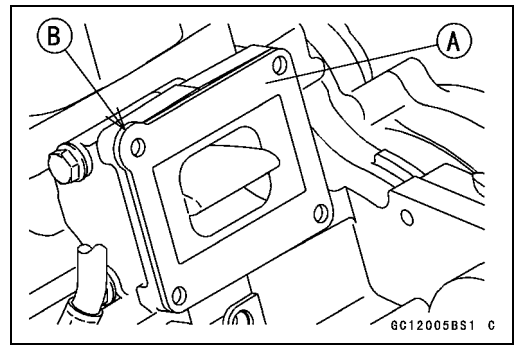


○Take the reed valve [A] out of the cylinder.



Reed Valve Installation

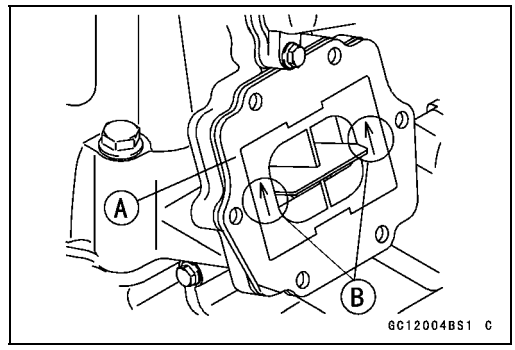
● For KX125, install the reed valve [A] as shown.
Upward [B]



Reed Valve

- For KX250, install the reed valve [A] so that the "↑" marked side [B] faces upward.
- Tighten the carburetor holder mounting bolts.

Torque - Carburetor Holder Mounting Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)



Reed Valve Inspection

- Refer to the Reed Valve Inspection in the Periodic Maintenance chapter.

Cooling System

Table of Contents

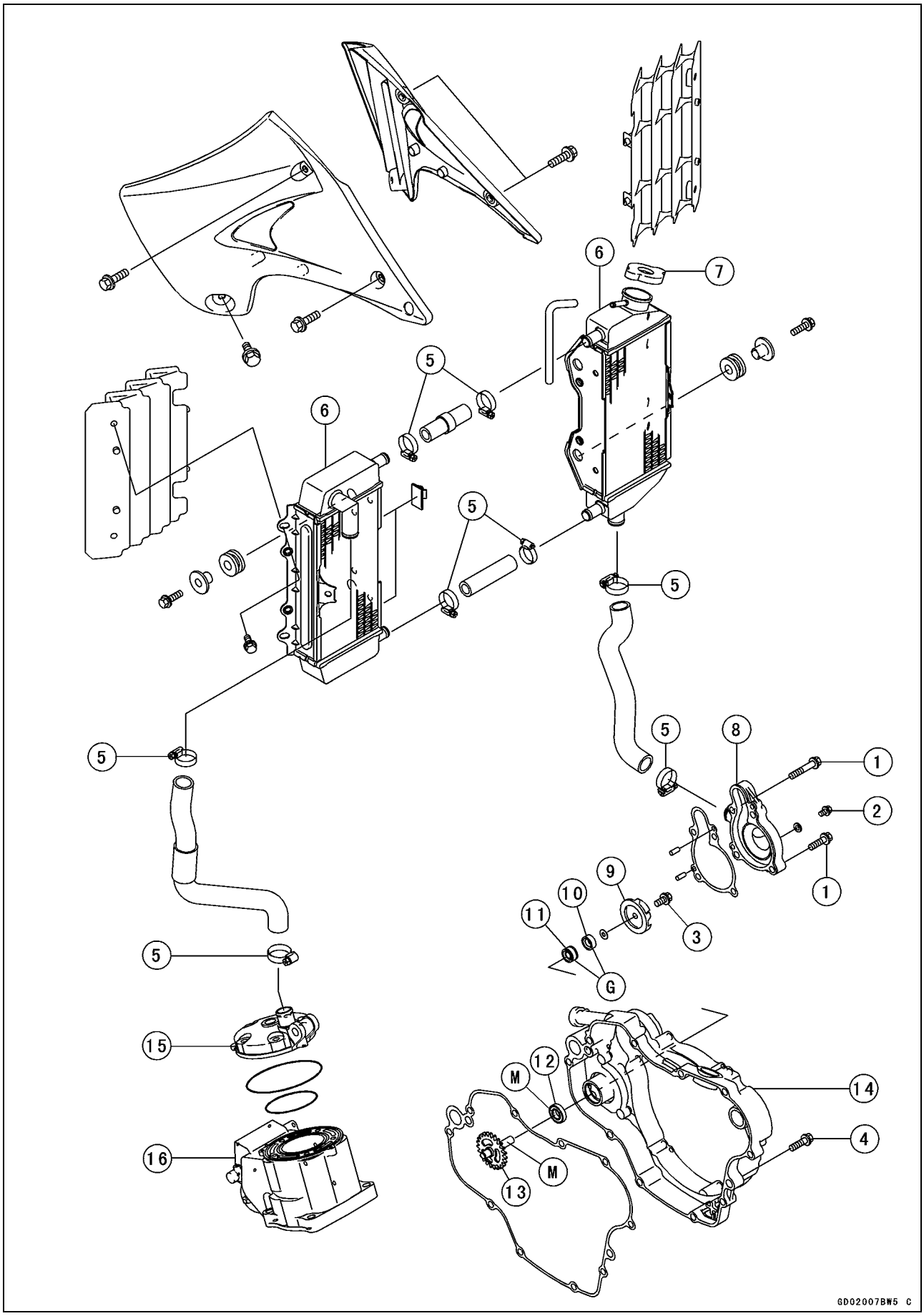
Exploded View 4-2
Specifications 4-6
Special Tools 4-7
Coolant 4-8
- Coolant Level Inspection 4-8
- Coolant Deterioration Inspection 4-8
- Coolant Draining 4-8
- Coolant Filling 4-8
- Air Bleeding 4-8
- Cooling System Pressure Testing 4-8
- Cooling System Flushing 4-9

Disassembly and Assembly Precautions 4-10
Water Pump 4-11
- Water Pump Cover Removal 4-11
- Water Pump Cover Installation 4-11
- Impeller Removal 4-11
- Impeller Installation 4-11
- Impeller Inspection 4-12
- Water Pump Shaft Removal 4-12
- Water Pump Shaft Installation 4-12
- Oil Seal Removal 4-12
- Oil Seal Installation 4-13

Radiator 4-14
- Radiator Removal 4-14
- Radiator Installation 4-14
- Radiator Inspection 4-14
- Cap Inspection 4-15
- Filler Neck Inspection 4-15
- Cooling Hoses, Breather Hose Inspection 4-15
- Cooling Hoses, Breather Hose Installation 4-15

Exploded View

KX125:



Exploded View

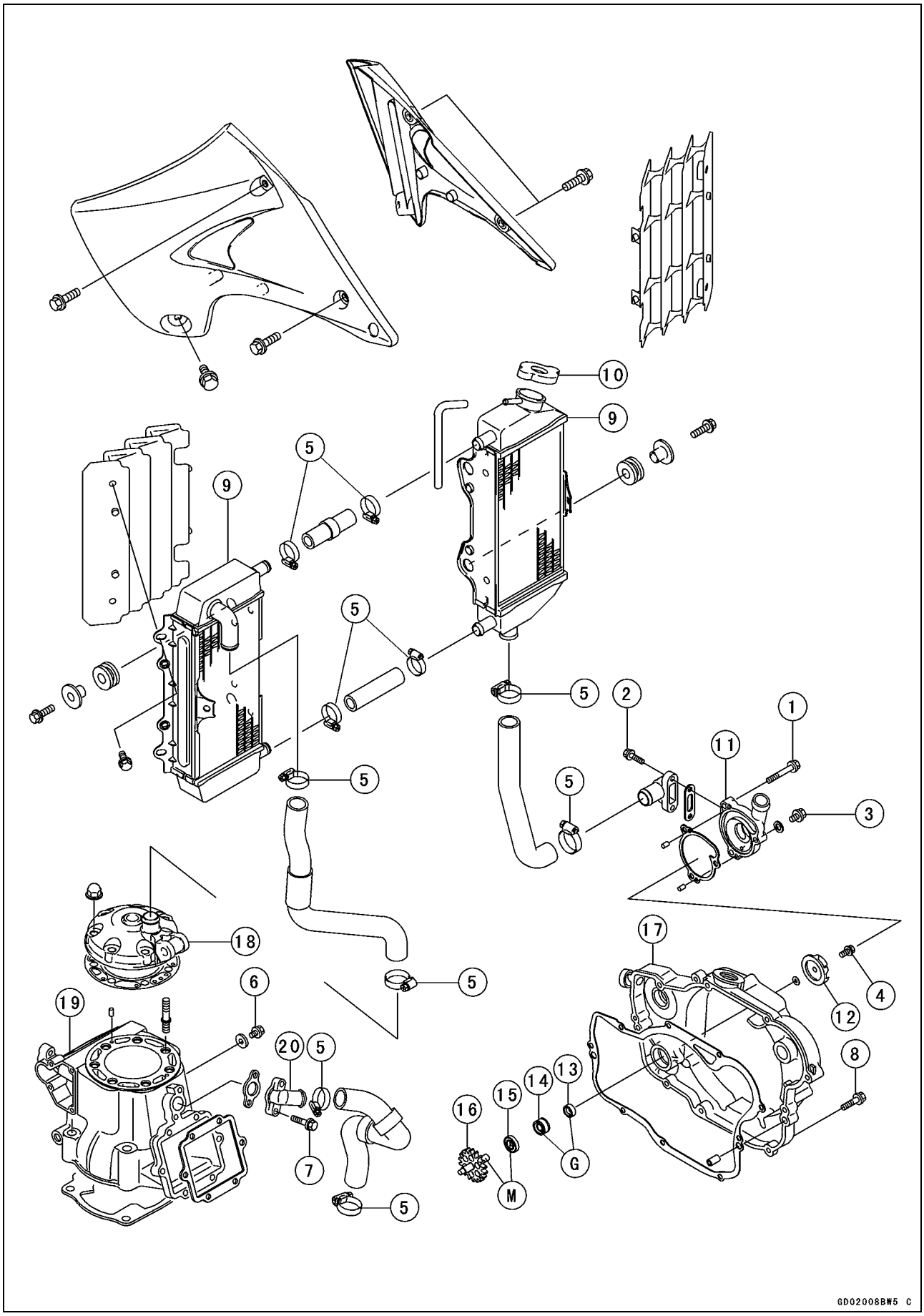
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Water Pump Cover Bolts	8.8	0.9	78 in·lb	
2	Coolant Drain Plug	8.8	0.9	78 in·lb	
3	Water Pump Impeller Bolt	6.9	0.7	61 in·lb	
4	Right Engine Cover Bolts	8.8	0.9	78 in·lb	
5	Cooling Hose Clamp Screws	1.5	0.15	13 in·lb	

6. Radiator
7. Radiator Cap
8. Water Pump Cover
9. Impeller
10. Oil Seal (Short)
11. Oil Seal (Long)
12. Bearing
13. Water Pump Gear
14. Right Engine Cover
15. Cylinder Head
16. Cylinder

G: Apply grease.
M: Apply molybdenum disulfide grease.

Exploded View

KX250:



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Water Pump Cover Bolts	8.8	0.9	78 in·lb	
2	Water Pump Cover Fitting Bolts	5.9	0.6	52 in·lb	
3	Coolant Drain Plug	8.8	0.9	78 in·lb	
4	Water Pump Impeller Bolt	6.9	0.7	61 in·lb	
5	Cooling Hose Clamp Screws	1.5	0.15	13 in·lb	
6	Cylinder Drain Plug	8.8	0.9	78 in·lb	
7	Cooling Hose Elbow Fitting Bolts	8.8	0.9	78 in·lb	
8	Right Engine Cover Bolts	8.8	0.9	78 in·lb	

9. Radiator
10. Radiator Cap
11. Water Pump Cover
12. Impeller
13. Oil Seal (Short)
14. Oil Seal (Long)
15. Bearing
16. Water Pump Gear
17. Right Engine Cover
18. Cylinder Head
19. Cylinder
20. Elbow Fitting

G: Apply grease.
M: Apply molybdenum disulfide grease.

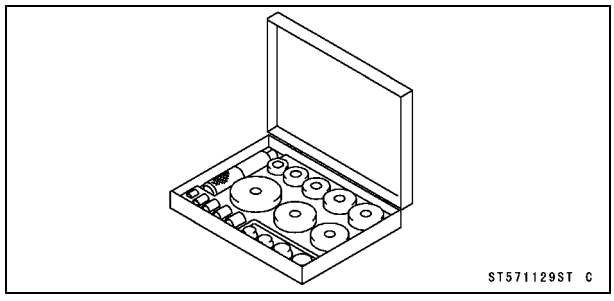
4-6 COOLING SYSTEM

Specifications

Item	Service Limit
Coolant	
Type	Permanent type antifreeze for aluminum engines and radiators
Color	Green
Mixed Ratio	Soft water 50 %, antifreeze 50 %
Total Amount:	
KX125	0.97 L (1.02 US qt.)
KX250	1.20 L (1.27 US qt.)
Radiator	
Cap Relief Pressure	93 ~ 123 kPa (0.95 ~ 1.25 kgf/cm², 13 ~ 18 psi)

Special Tools

Bearing Driver Set:
57001-1129



Coolant

Check the coolant level each day before riding the motorcycle, and replenish coolant if the level is low. Change the coolant in accordance with the Periodic Maintenance Chart (see Periodic Maintenance chapter).

⚠ WARNING

To avoid burns, do not remove the radiator cap or try to inspect the coolant level or change the coolant when the engine is still hot. Wait until it cools down.

Coolant Level Inspection

- Refer to the Coolant Level Inspection in the Periodic Maintenance chapter.

Coolant Deterioration Inspection

- Refer to the Coolant Deterioration Inspection in the Periodic Maintenance chapter.

Coolant Draining

- Refer to the Coolant Draining in the Periodic Maintenance chapter.

Coolant Filling

- Refer to the Coolant Filling in the Periodic Maintenance chapter.

Air Bleeding

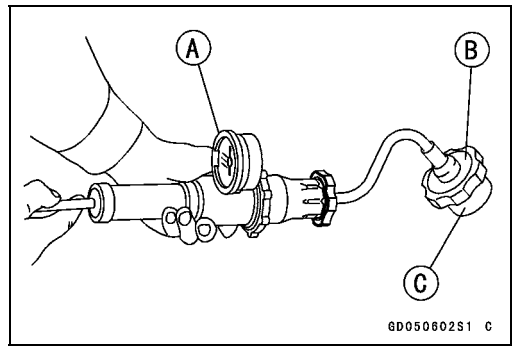
- Refer to the Air Bleeding in the Periodic Maintenance chapter.

Cooling System Pressure Testing

CAUTION

During pressure testing, do not exceed the pressure for which the system is designed to work. The maximum pressure is 123 kPa (1.25 kgf/cm², 18 psi).

- Remove the radiator cap, and install a cooling system pressure tester [A] and adapter [B] on the radiator filler neck [C].



NOTE

○*Wet the adapter cap sealing surfaces with water or coolant to prevent pressure leaks.*

- Build up pressure in the system carefully until the pressure reaches 123 kPa (1.25 kgf/cm², 18 psi).
- Watch the gauge for at least 6 seconds. If the pressure holds steady, the cooling system is all right.
- Remove the pressure tester, replenish the coolant, and install the radiator cap.

★If the pressure drops and no external source is found, check for internal leaks. Check the cylinder head gasket for leaks.

Coolant

Cooling System Flushing

Over a period of time, the cooling system accumulates rust, scale, and lime in the water jacket and radiator. When this accumulation is suspected or observed, flush the cooling system. If this accumulation is not removed, it will clog up the water passages and considerably reduce the efficiency of the cooling system.

- Drain the cooling system.
- Fill the cooling system with fresh water mixed with a flushing compound.

CAUTION
Avoid the use of a flushing compound which is harmful to the aluminum engine and radiator. Carefully follow the instructions supplied by the manufacture of the cleaning product.

- Warm up the engine, and run it at normal operating temperature for about ten minutes.
- Stop the engine, and drain the cooling system after the coolant cools down.
- Fill the system with fresh water.
- Warm up the engine and drain the system after the coolant cools down.
- Repeat the previous two steps once more.
- Fill the system with a permanent type coolant, and bleed the air from the system (see Air Bleeding).

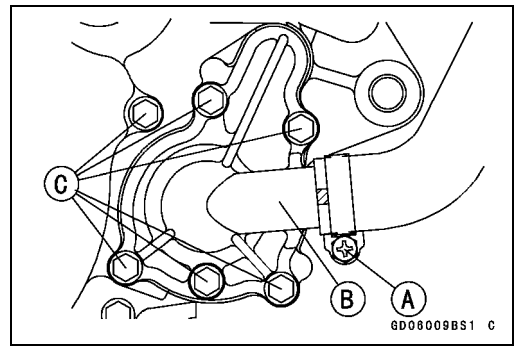
Disassembly and Assembly Precautions

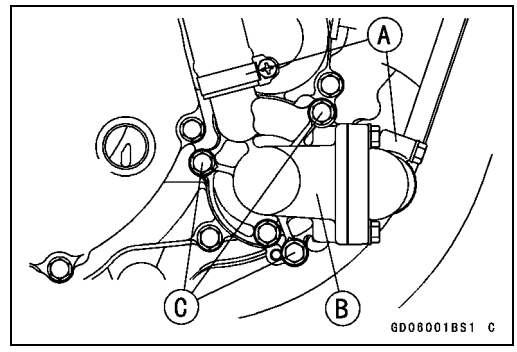
- Prior to disassembly of cooling system parts (radiator, pump, etc), wait until the coolant cools down, and then drain the coolant.
- After assembling and filling the system with coolant, bleed any air from the system.

Water Pump

Water Pump Cover Removal

- Drain the coolant (see Coolant Draining).
- Loosen the cooling hose clamps [A], and disconnect the cooling hoses on the water pump cover [B].
- Unscrew the cover bolts [C], and remove the water pump cover.





Water Pump Cover Installation

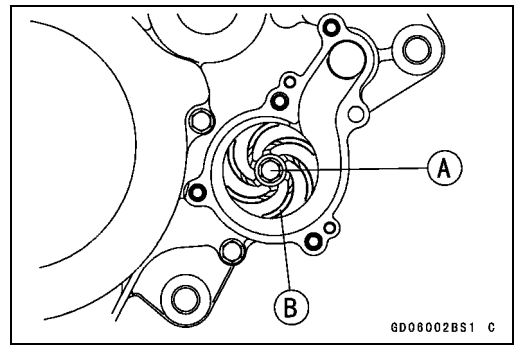
- Replace the pump cover gasket with a new one.
- Tighten the water pump cover bolts and clamps.

Torque - Water Pump Cover Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)
Cooling Hose Clamp Screws: 1.5 N·m (0.15 kgf·m, 13 in·lb)

- Fill the cooling system (see Coolant Filling).
- Bleed the air from the cooling system.

Impeller Removal

- Drain the coolant (see Coolant Draining).
- Remove the cover bolts and take out the water pump cover from the right engine cover with the cooling hoses attached.
- Remove the impeller bolt [A], and take out the impeller [B] and washer.



Impeller Installation

- Tighten the impeller bolt.

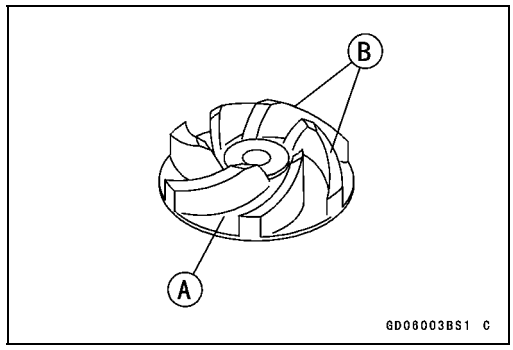
Torque - Impeller Bolt: 6.9 N·m (0.7 kgf·m, 61 in·lb)

Water Pump

Impeller Inspection

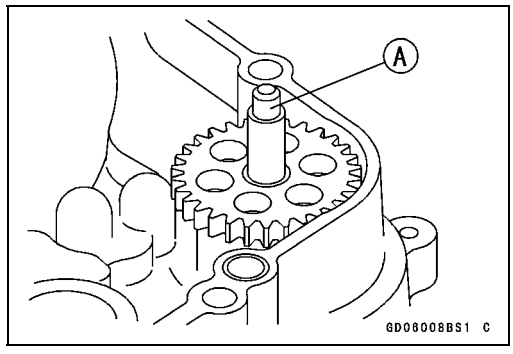
- Visually check the impeller [A].

★If the surface is corroded, or if the blades [B] are damaged, replace the impeller.



Water Pump Shaft Removal

- Remove:
  Right Engine Cover (see Engine Right Side chapter)
- Pull out the water pump shaft [A] toward inside of the right engine cover.



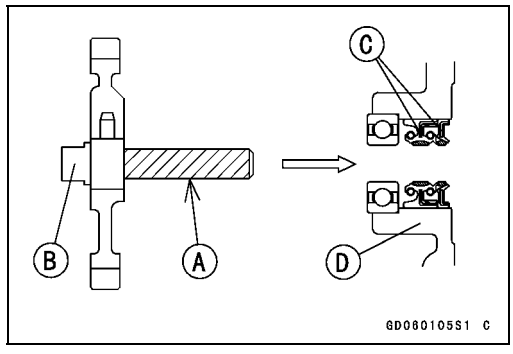
Water Pump Shaft Installation

- To prevent the oil seal lips from peeling, apply a molybdenum disulfide grease [A] to the water pump shaft [B] and insert it into the oil seals [C] from the inside of the right engine cover [D].

CAUTION

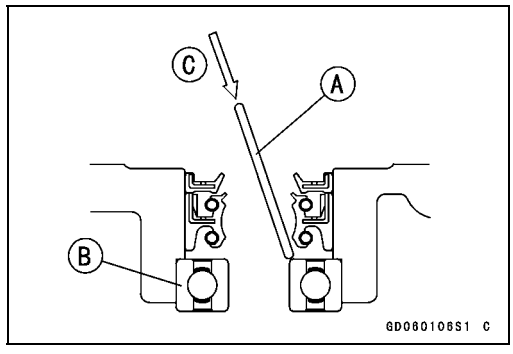
Be sure to apply a molybdenum disulfide grease to the water pump shaft when installing. If it is installed dry, the seals may wear excessively.

- Instal the impeller and check to see that the impeller turn freely.



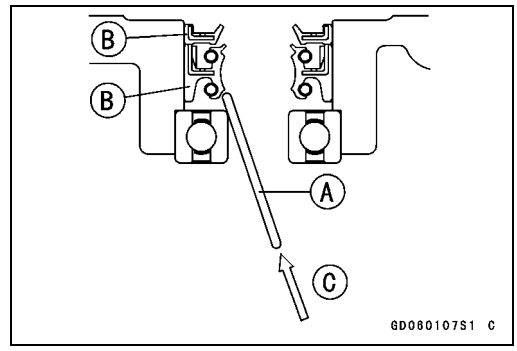
Oil Seal Removal

- Remove:
  Right Engine Cover (see Engine Right Side chapter)
  Water Pump Shaft
- Insert a bar [A] into the water pump shaft hole from the outside of the right engine cover, and remove the ball bearing [B] by tapping [C] evenly around the bearing inner race.



Water Pump

- Insert a bar [A] into the water pump shaft hole from the inside of the right engine cover, and remove the oil seal [B] by tapping [C] evenly around the seal lips.



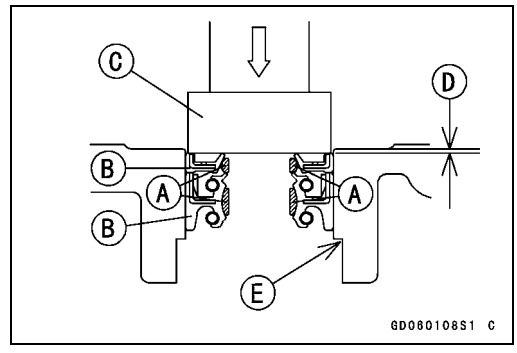
Oil Seal Installation

CAUTION

If the oil seal or ball bearing is removed, replace all of them with new ones at the same time

- Be sure to replace the oil seals.
- Apply plenty of high temperature grease to the oil seal lips [A].
- Press the oil seals [B] into the hole from the outside of the right engine cover.

Special Tool - Bearing Driver Set: 57001-1129



- Set the oil seal (thick) so that dual lips side face outward and set the oil seal (thin) so that a lip faces outward as shown.

NOTE

○*Use a bearing driver larger in diameter than the oil seal, and press the oil seal into the hole until the edge of the oil seal located 0.1 ~ 0.5 mm (0.0039 ~ 0.0197 in.) [D] deep from the surface of the hole.*

- Press the ball bearing into the hole until the bearing is bottomed against the step [E].

Special Tool - Bearing Driver Set: 57001-1129

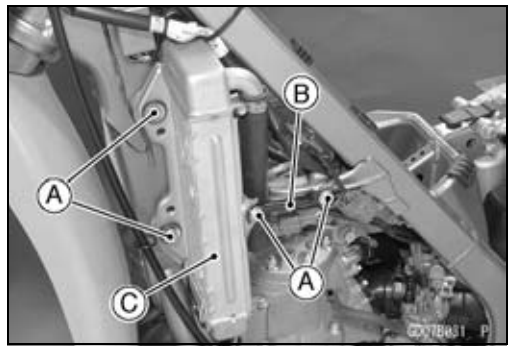
Radiator

Radiator Removal

- Drain the coolant (see Coolant Draining)
- Remove:
  Radiator Shrouds
  Fuel Tank (see Fuel System chapter)
- Unscrew the clamps [A] and the bolts [B].
- Remove the radiator screens [C].

- Unscrew the bolts [A].
- Remove:
  Radiator Brackets [B]
  Radiator [C] with the cooling hoses

○For KX125 be sure to remove the magneto lead (harness) from left radiator.



Radiator Installation

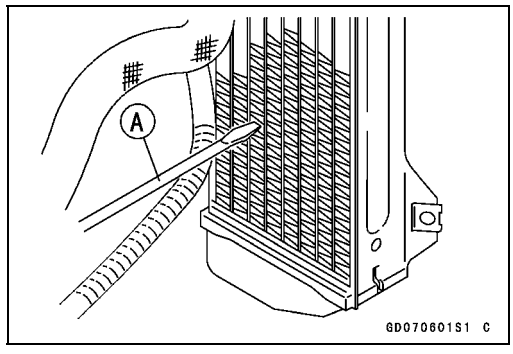
- Radiator installation is the reverse of removal.
- Route the cooling and breather hoses correctly.

Radiator Inspection

- Check the radiator core.

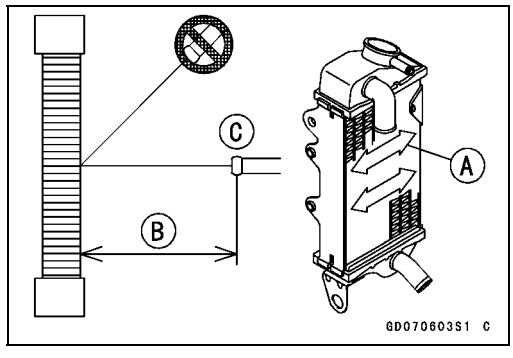
★If there are obstructions to air flow, remove them.

★If the corrugated fins are deformed, carefully straighten them with the thin blade of a screwdriver [A].



CAUTION
Do not tear the radiator tubes while straightening the fins.

★If the air passages of the radiator core are blocked more than 20% by unremovable obstructions or irreparably deformed fins, replace the radiator with a new one.



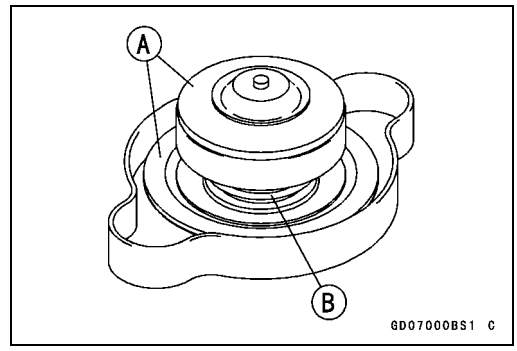
CAUTION
When cleaning the radiator with steam cleaner, be careful of the following to prevent radiator damage. Keep the steam gun [C] away more than 0.5 m (1.64 ft) [B] from the radiator core. Hold the steam gun perpendicular to the core surface. Run the steam gun following the core fin direction [A].

Radiator

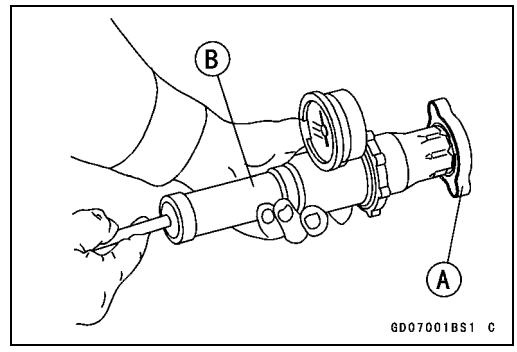
Cap Inspection

- Check the condition of the valve spring [B], and the top and bottom valve seals [A] of the radiator cap.

★If any one of them shows visible damage, replace the cap.



- Wet the top and bottom valve seals with water or coolant to prevent pressure leaks.
- Install the cap [A] on a cooling system pressure tester [B].
- Watching the pressure gauge, slowly pump the pressure tester to build up the pressure. The gauge hand must remain within the relief pressure range in the table below at least 6 seconds. Continue to pump the tester until the relief valve opens, indicated by the gauge hand flicking downward. The relief valve must open within the specified range.

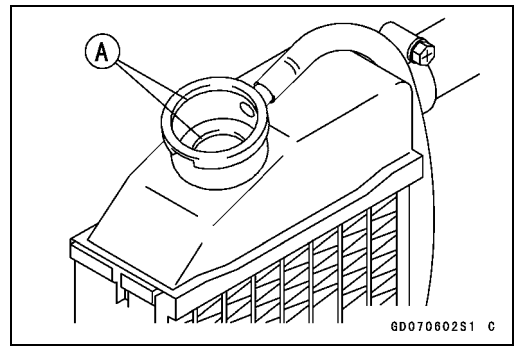


Radiator Cap Relief Pressure:
Standard: 93 ~ 123 kPa (0.95 ~ 1.25 kgf/cm², 13 ~ 18 psi)

★If the cap cannot hold the pressure, or if the relief pressure is too high or too low, replace the cap with a new one.

Filler Neck Inspection

- Check the radiator filler neck for signs of damage.
- Check the condition of the top and bottom sealing seats [A] in the filler neck. They must be smooth and clean for the radiator cap to function properly.



Cooling Hoses, Breather Hose Inspection

- Refer to the Cooling Hoses and Connections Inspection in the Periodic Maintenance chapter.

Cooling Hoses, Breather Hose Installation

- Install the cooling hoses or breather hose being careful to follow the performed bends (see Appendix chapter). Avoid sharp bending, kinking, flattening, or twisting.
- Tighten the hose clamps securely.

Torque - Cooling Hose Clamp Screws: 1.5 N·m (0.15 kgf·m, 13 in·lb)

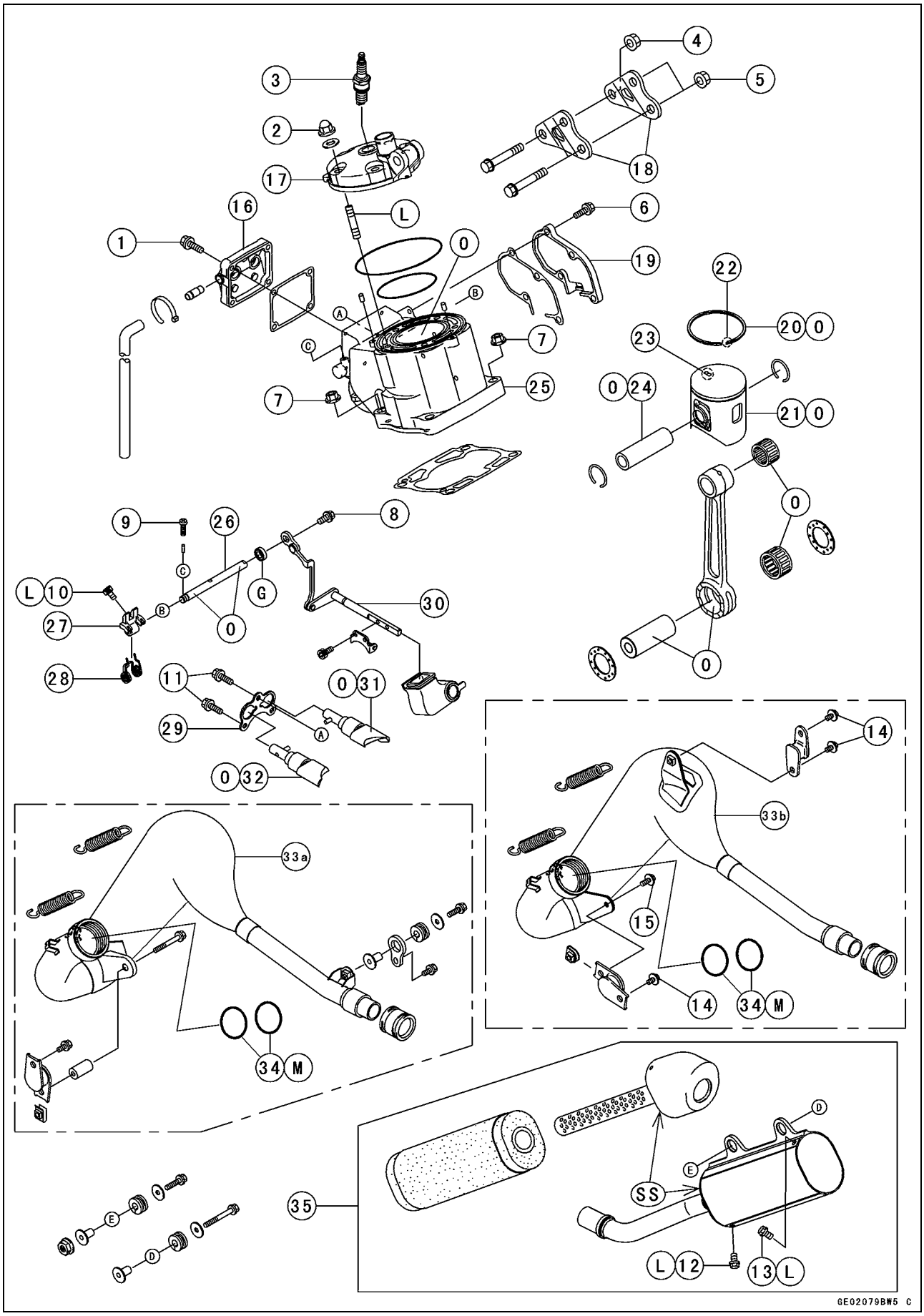
Engine Top End

Table of Contents

Exploded View 5-2
Specifications 5-6
Special Tool 5-8
Cylinder Head 5-9
    Cylinder Compression Measurement 5-9
    Cylinder Head Removal 5-9
    Cylinder Head Installation 5-10
    Cylinder Head Warp Inspection 5-10
Cylinder 5-11
    Cylinder Removal 5-11
    Cylinder Installation 5-12
    Piston Removal 5-13
    Piston Installation 5-13
    Cylinder Wear Inspection 5-14
    Piston Diameter Measurement 5-15
    Piston/Cylinder Clearance 5-15
    Piston Ring, Piston Ring Groove Inspection 5-15
    Piston Ring End Gap Inspection 5-15
    Piston, Piston Pin, Connecting Rod Wear Inspection 5-15
Exhaust Valve (KIPS) 5-16
    Exhaust Valve Removal (KX125 Model) 5-16
    Exhaust Valve Removal (KX250 Model) 5-17
    Exhaust Valve Installation (KX125 Model) 5-18
    Exhaust Valve Installation (KX250 Model) 5-20
Muffler (Expansion Chamber, Silencer) 5-25
    Muffler Removal 5-25
    Muffler Installation 5-25
    Silencer Packing Change 5-25

Exploded View

KX125:



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Main Valve Cover Bolts	5.9	0.6	52 in·lb	
2	Cylinder Head Nuts	25	2.5	18	
3	Spark Plug	26.5	2.75	19.5	
4	Engine Mounting Bracket Nut (Engine Side 10 mm)	44	4.5	33	
5	Engine Mounting Bracket Nuts (Frame Side 8 mm)	29	3.0	22	
6	KIPS Cover Bolts	4.9	0.5	43 in·lb	
	KX125-M2~	8.8	0.9	78 in·lb	
7	Cylinder Nuts	25	2.5	18	
8	Governor Shaft Lever Mounting Bolt	6.9	0.7	61 in·lb	
9	Main Shaft Stopper Pin Plug	0.8	0.08	6.9 in·lb	
10	Main Lever Mounting Allen Bolt	3.9	04	35 in·lb	L
11	Exhaust Valve Retaining Bolts	5.9	0.6	52 in·lb	
12	Silencer Inner Pipe Bolts	8.8	0.9	78 in·lb	L
13	Silencer Pipe Mounting Bolts	8.8	0.9	78 in·lb	L
14	Muffler Damper Mounting Bolts	8.8	0.9	78 in·lb	
15	Expansion Chamber Mounting Bolt	12	1.2	8.7	

16. Main Valve Cover
17. Cylinder Head
18. Engine Mounting Brackets
19. KIPS Cover
20. Piston Ring
21. Piston
22. “R” Mark
23. “Alphabet” Mark
24. Piston Pin
25. Cylinder
26. Main Shaft
27. Main Lever
28. Spring
29. Exhaust Valve Retaining Plate
30. Governor Shaft Lever
31. Exhaust Valve Right (Identification Slot)
32. Exhaust Valve Left

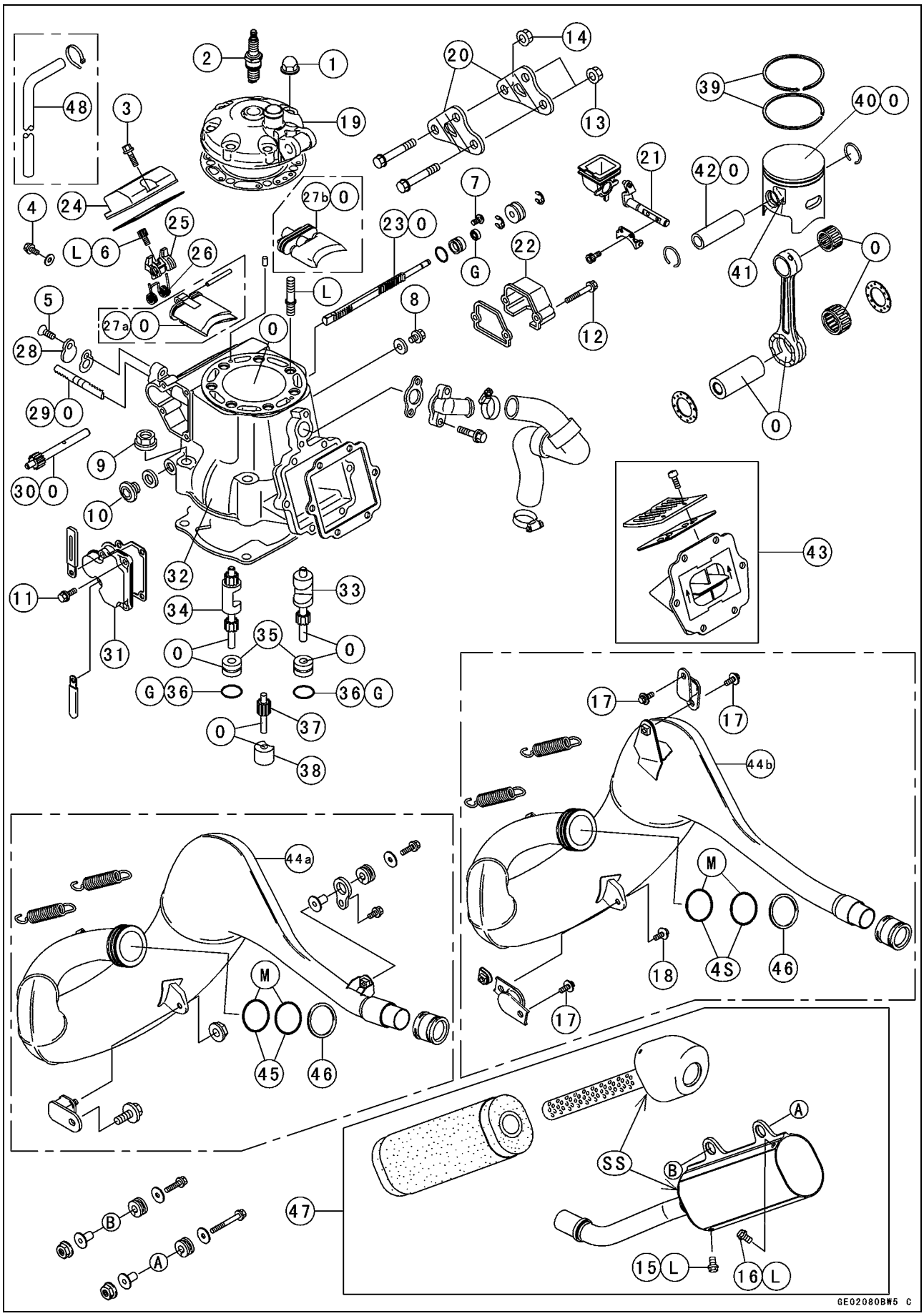
33a. Expansion Chamber (KX125-M1 model)
33b. Expansion Chamber (KX125-M2 model~)

34. Rubber Seals
35. Silencer

G: Apply grease.
L: Apply a non-permanent locking agent.
O: Apply 2-stroke engine oil.
M: Apply molybdenum disulfide grease.
SS: Apply silicone sealant.

Exploded View

KX250:



Exploded View

No.	Fastener	Torque			Re-marks
		N·m	kgf·m	ft·lb	
1	Cylinder Head Nuts	25	2.5	18	
2	Spark Plug	26.5	2.75	19.5	
3	Main Valve Cover Bolts	5.9	0.6	52 in·lb	
4	Main Valve Retaining Bolts	5.9	0.6	52 in·lb	
5	Main Valve Rod Cover Screw	5.9	0.6	52 in·lb	
6	Main Lever Mounting Allen Bolt	3.9	0.4	35 in·lb	L
7	Operating Rod Retaining Screw	5.4	0.55	48 in·lb	
8	Cylinder Drain Plug	8.8	0.9	78 in·lb	
9	Cylinder Nuts	34	3.5	25	
10	Operating Rod Left Side Plug	22	2.2	16	
11	Cylinder Left Cover Bolts	5.9	0.6	52 in·lb	
12	KIPS Cover Bolts	2.9	0.3	26 in·lb	
13	Engine Mounting Bracket Nuts (Frame Side 8 mm)	29	3.0	22	
14	Engine Mounting Bracket Nuts (Engine Side 10 mm)	44	4.5	33	
15	Silencer Inner Pipe Bolts	8.8	0.9	78 in·lb	L
16	Silencer Pipe Mounting Bolts	8.8	0.9	78 in·lb	L
17	Muffler Damper Mounting Bolts	8.8	0.9	78 in·lb	
18	Expansion Chamber Mounting Bolt	12	1.2	8.7	

19. Cylinder Head
20. Engine Mounting Brackets
21. Governor Shaft Lever
22. KIPS Cover
23. Operating Rod
24. Main Valve Cover
25. Main Lever
26. Spring
27a. Main Exhaust Valve Assembly (KX250-M1 model)
27b. Main Exhaust Valve Assembly (KX250-M2 model~)
28. Main Valve Rod Cover
29. Main Valve Rod
30. Main Shaft
31. Cylinder Left Cover
32. Cylinder
33. Exhaust Valve (Left)
34. Exhaust Valve (Right)
35. Guide
36. O-ring
37. Idle Gear
38. Guide
39. Piston Ring
40. Piston
41. “IN” Mark
42. Piston Pin
43. Reed Valve
44a. Expansion Chamber (KX250-M1 model)
44b. Expansion Chamber (KX250-M2 model~)
45. Rubber Seals
46. Gasket
47. Silencer
48. Vent Hose (KX250-M2 model~)

G: Apply grease.
L: Apply a non-permanent locking agent.
M: Apply molybdenum disulfide grease.
O: Apply 2-stroke engine oil.
SS: Apply silicone sealant.

Specifications

KX125:

Item	Standard	Service Limit
Cylinder Head		
Cylinder Compression	(Usable range) 890 ~ 1 370 kPa (9.1 ~ 14.0 kgf/cm², 129 ~ 199 psi)	– – –
Cylinder Head Warp	– – –	0.03 mm (0.0012 in.)
Cylinder, Piston		
Cylinder Inside Diameter (15 mm (0.59 in.) below of the cylinder head)	54.010 ~ 54.025 mm (2.1264 ~ 2.1270 in.)	54.10 mm (2.130 in.)
Piston Diameter	53.955 ~ 53.970 mm (2.1242 ~ 2.1248 in.)	53.81 mm (2.118 in.)
Piston/Cylinder Clearance	0.040 ~ 0.070 mm (0.0016 ~ 0.0028 in.)	– – –
Piston Ring/Groove Clearance	0.015 ~ 0.050 mm (0.0006 ~ 0.0020 in.)	0.15 mm (0.006 in.)
Piston Ring Groove Width	1.01 ~ 1.03 mm (0.0398 ~ 0.0406 in.)	1.11 mm (0.044 in.)
Piston Ring Thickness	0.980 ~ 0.995 mm (0.0386 ~ 0.0392 in.)	0.91 mm (0.036 in.)
Piston Ring End Gap	0.35 ~ 0.55 mm (0.0138 ~ 0.0217 in.)	0.85 mm (0.033 in.)
Piston Pin Diameter	14.995 ~ 15.000 mm (0.5904 ~ 0.5906 in.)	14.96 mm (0.589 in.)
Piston Pin Hole Diameter	15.001 ~ 15.011 mm (0.5906 ~ 0.5910 in.)	15.08 mm (0.594 in.)
Small End Inside Diameter	19.003 ~ 19.014 mm (0.7481 ~ 0.7486 in.)	19.05 mm (0.750 in.)

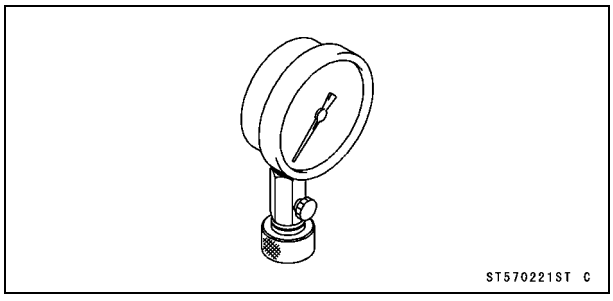
Specifications

KX250:

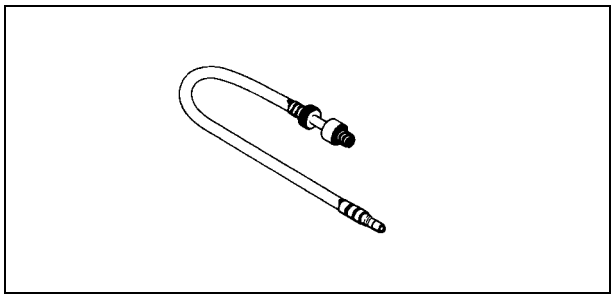
Item	Standard	Service Limit
Cylinder Head		
Cylinder Compression	(Usable range) 825 ~ 1 275 kPa (8.4 ~ 13.0 kgf/cm², 119 ~ 185 psi)	– – –
Cylinder Head Warp	– – –	0.03 mm (0.0012 in.)
Cylinder, Piston		
Cylinder Inside Diameter	66.400 ~ 66.415 mm (2.6142 ~ 2.6148 in.)	66.46 mm (2.617 in.)
30 mm (1.18 in.) below of the cylinder head)		
Piston Diameter	66.336 ~ 66.351 mm (2.6116 ~ 2.6122 in.)	66.19 mm (2.6059 in.)
Piston/Cylinder Clearance	0.049 ~ 0.079 mm (0.0019 ~ 0.0031 in.)	– – –
Piston Ring/Groove Clearance	0.025 ~ 0.06 mm (0.00098 ~ 0.00236 in.)	0.16 mm (0.006 in.)
Piston Ring Groove Width	1.01 ~ 1.03 mm (0.0398 ~ 0.0406 in.)	1.11 mm (0.044 In.)
Piston Ring Thickness	0.970 ~ 0.985 mm (0.0382 ~ 0.0388 in.)	0.90 mm (0.035 in.)
Piston Ring End Gap	0.25 ~ 0.45 mm (0.0098 ~ 0.0177 in.)	0.75 mm (0.030 in.)
Piston Pin Diameter	17.995 ~ 18.000 mm (0.7085 ~ 0.7087 in.)	17.96 mm (0.707 in.)
Piston Pin Hole Diameter	18.001 ~ 18.011 mm (0.7087 ~ 0.7091 in.)	18.08 mm (0.712 in.)
Small End Inside Diameter	22.003 ~ 22.012 mm (0.8663 ~ 0.8666 in.)	22.05 mm (0.868 in.)

Special Tool

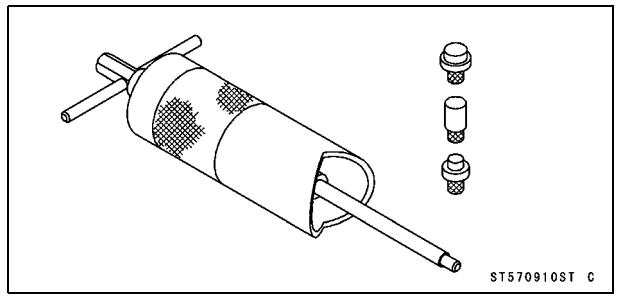
Compression Gauge, 20 kgf/cm²:
57001-221



Compression Gauge Adapter, M14 × 1.25:
57001-1159

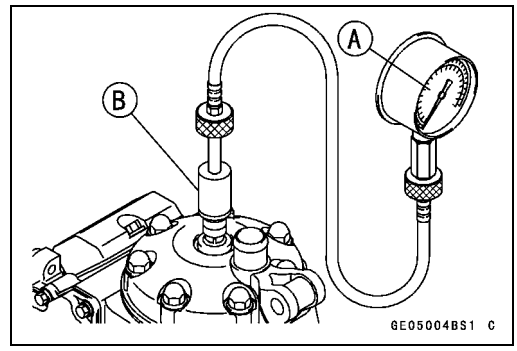


Piston Pin Puller Assembly:
57001-910



Cylinder Head

Cylinder Compression Measurement



- Start the engine.
- Thoroughly warm up the engine so that the engine oil between the piston and cylinder wall will help seal compression as it does during normal running.
- Stop the engine.
- Remove the fuel tank (see Fuel System chapter).
- Remove the spark plug, and screw a compression gauge firmly into the spark plug hole.

Special Tools - Compression Gauge, 20 kgf/cm²: 57001-221 [A]
Compression Gauge Adapter, M14 × 1.25: 57001-1159

- With the throttle fully open, turn the engine over sharply with the kickstarter several times until the compression gauge stops riding; the compression is the highest reading obtainable.

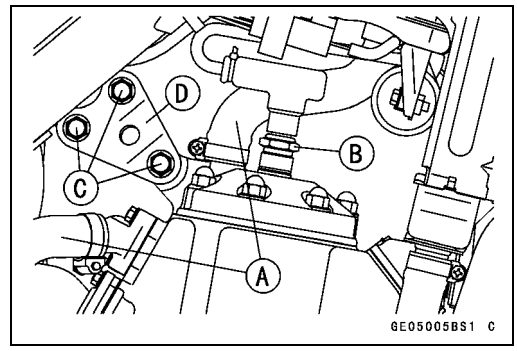
Cylinder Compression
Usable Range:

KX125	**890 ~ 1 370 kPa (9.1 ~ 14.0 kgf/cm², 129 ~ 199 psi)**
KX250	**825 ~ 1 275 kPa (8.4 ~ 13.0 kgf/cm², 119 ~ 185 psi)**

★If cylinder compression is higher than the usable range, check the following:
1. Carbon build up on the piston head and cylinder head - clean off any carbon on the piston head.
2. Cylinder head gasket, cylinder base gasket - use only the proper gaskets for the cylinder head and base. The use of gasket of the incorrect thickness will change the compression.

★If cylinder compression is lower than the usable range, check the following:
1. Piston/cylinder clearance, piston seizure.
2. Gas leakage around the cylinder head - replace the damaged gasket and check the cylinder head for warping.
3. Piston ring, piston ring groove.

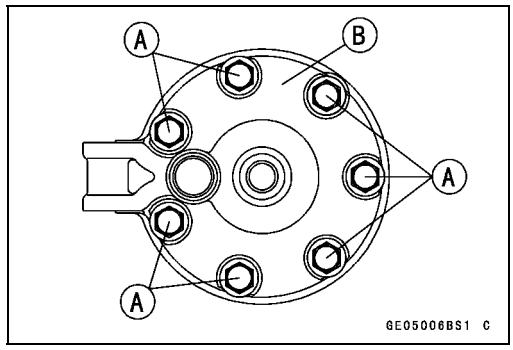
Cylinder Head Removal



- Drain the coolant (see Cooling System chapter).
- Remove:
  Radiator Shrouds
  Seat
  Side Covers
  Fuel Tank (see Fuel System chapter)
  Muffler (see this chapter)
  Radiators (see Cooling System chapter)
  Cooling Hose [A]
  Spark Plug [B]
  Bolts & Nuts [C]
  Engine Mounting Brackets [D]

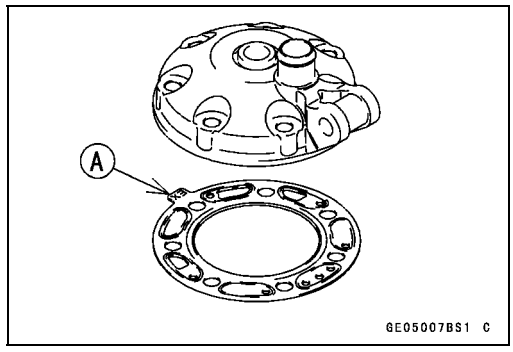
Cylinder Head

- Remove the cylinder head nuts [A], and take off the cylinder head [B] and the O-rings (KX125) or the gasket (KX250).



Cylinder Head Installation

- Replace the O-rings or the head gasket with a new one.
- Scrape out any carbon and clean the head with a high flash-point solvent.
- Check for a crust of minerals and rust in the head water jacket, and remove them if necessary.
- For KX125, install new O-rings to the grooves of the cylinder securely.
- For KX250, install a new cylinder head gasket with the EX marked side [A] forward.



- Tighten the head nuts diagonally.

  Torque - Cylinder Head Nuts: 25 N·m (2.5 kgf·m, 18 ft·lb)

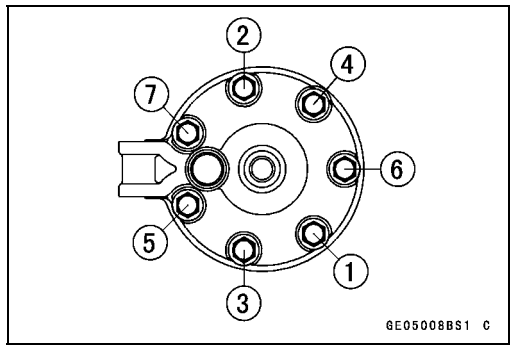
- Tighten the engine mounting bracket nuts.

  Torque - Cylinder Head Nuts: 25 N·m (2.5 kgf·m, 18 ft·lb)

  Torque - Engine Mounting Bracket Nuts: 10 mm: 44 N·m (4.5 kgf·m, 33 ft·lb)
  8 mm: 29 N·m (3.0 kgf·m, 22 ft·lb)

- Tighten the spark plug.

  Torque - Spark Plug: 26.5 N·m (2.75 kgf·m, 19.5 ft·lb)



Cylinder Head Warp Inspection

- Refer to the Cylinder Head Warp Inspection in the Periodic Maintenance chapter.

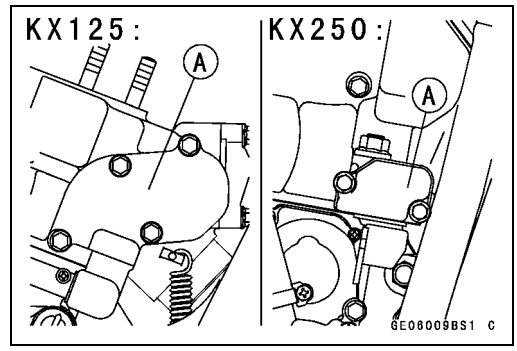
Cylinder

Cylinder Removal

- Drain the coolant (see Cooling System chapter).

○For KX250: be sure to remove the cylinder drain plug.

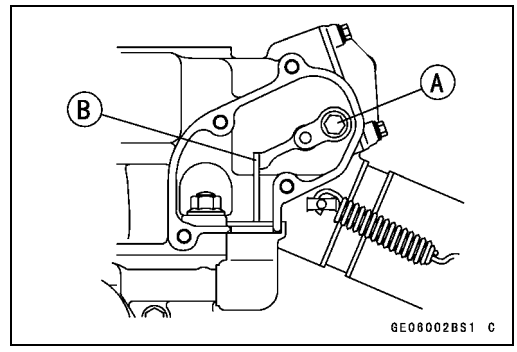
- Remove the cylinder head (see this chapter).
- Remove the cooling hoses.
- Remove the KIPS cover [A] at the cylinder.



- Remove the governor shaft lever in accordance with the following procedure .

KX125

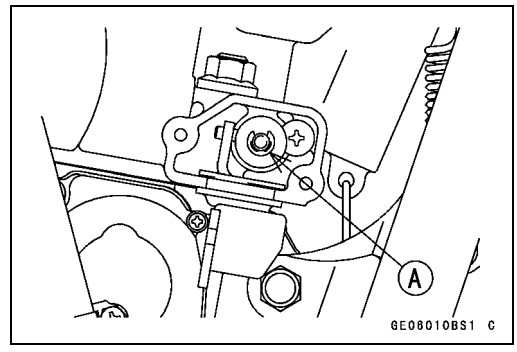
○Remove the bolt [A] and pull out the governor shaft lever [B] from the main shaft.



KX250

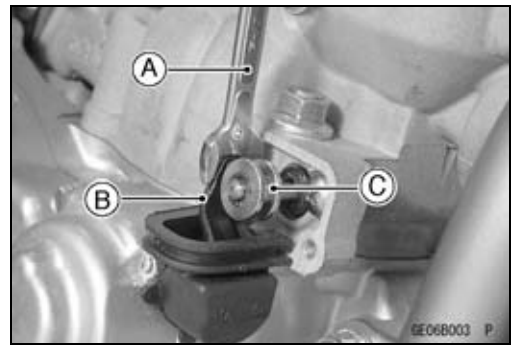
○Loosen the clamps, and pull the carburetor out of the holder and the air cleaner duct.

○Remove the E-clip [A] from the operating rod.

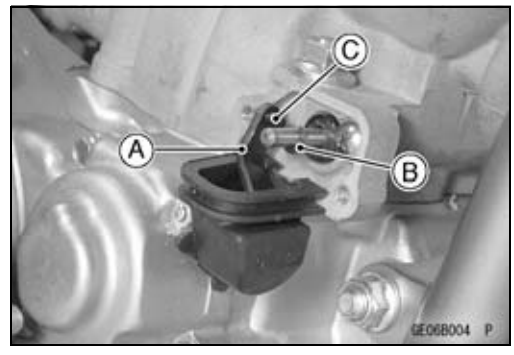


○Put a 9 mm (0.35 in.) spanner wrench [A] on the governor shaft lever upper end.

○Turn the governor shaft lever [B] counterclockwise with the wrench, and take off the operating rod collar [C] by pushing the operating rod into the cylinder.

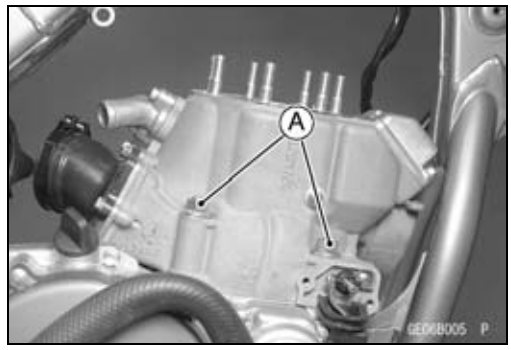


○Before pulling the governor shaft lever [A] free, turn the remaining E-clip [B] to a suitable position as shown in the figure to prevent the governor shaft lever boss [C] and the E-clip from hitting.

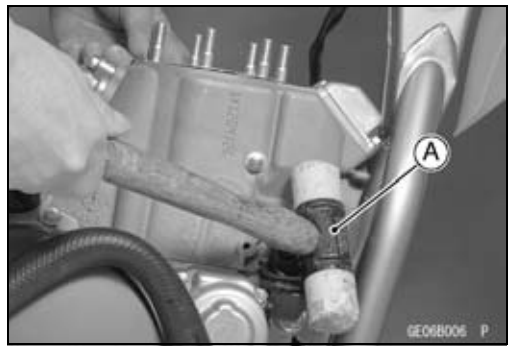


Cylinder

- For KX250, remove the magneto lead and the clutch cable from clamp.
- Remove the cylinder nuts [A].



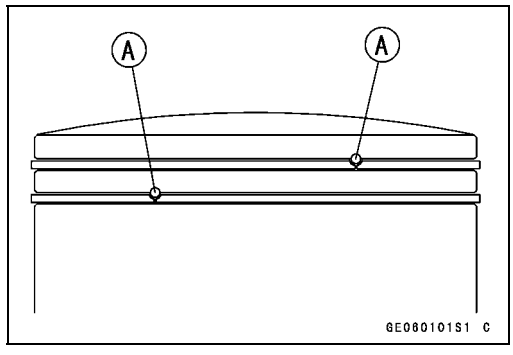
- Lift off the cylinder, and remove the cylinder base gasket. If necessary, tap lightly around the base of the cylinder with a plastic mallet [A], taking care not to damage the cylinder.
- Remove the exhaust valves from the cylinder (see Exhaust Valve Removal).



Cylinder Installation

- Scrape any carbon out of the exhaust port.
- Check on a crust of minerals and rust in the cylinder water jacket, and remove them if necessary.
- Replace the cylinder base gasket with a new one.
- Apply engine oil to the piston surface, piston rings and cylinder bore.
- Check to see that the pin [A] in each piston ring groove is between the ends of the piston ring, and fit the base of the cylinder over each ring, pressing in on opposite sides of the ring as necessary. Be certain that the rings do not slip out of position.
- Tighten the cylinder nuts diagonally.

Torque - Cylinder Nuts:KX125: 25 N·m (2.5 kgf·m, 18 ft·lb)
KX250: 34 N·m (3.5 kgf·m, 25 ft·lb)



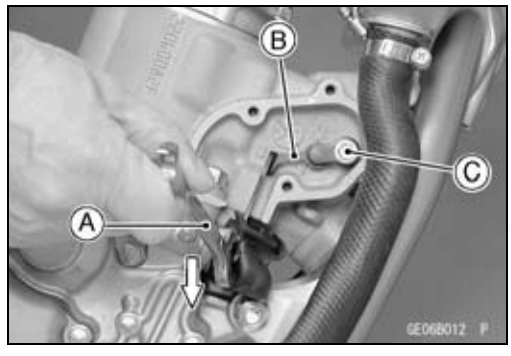
KX125

- Using the 14 mm (0.56 in.) spanner wrench [A], turn the governor shaft counterclockwise.
- Install the governor shaft lever [B] to the main shaft and tighten the bolt [C].

Torque - Governor Shaft Lever Mounting Bolt: 6.9 N·m (0.7 kgf·m, 61 in·lb)

- Install the KIPS cover.
- Tighten:

Torque - KIPS Cover Bolts: 4.9 N·m (0.5 kgf·m, 43 in·lb)
KX125-M2~: 8.8 N·m (0.9 kgf·m, 78 in·lb)



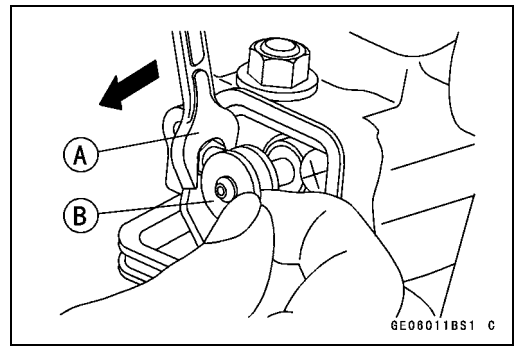
Cylinder

KX250

- Install the governor shaft lever and operating rod collar in accordance with the following procedure.

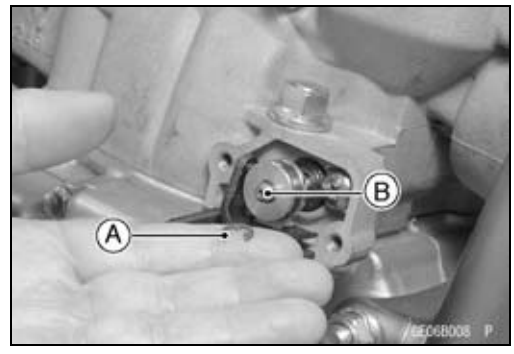
○Put a 9 mm (0.35 in.) spanner [A] wrench on the governor shaft lever upper end.

○Turn the governor shaft lever counterclockwise with the wrench and fit the groove of the operating rod collar [B] to the boss of the governor shaft lever, and install the collar on the operating rod while holding the governor shaft lever clockwise.



- After installing the collar, install the E-clip [A] on the operating rod [B].
- Install the KIPS cover.

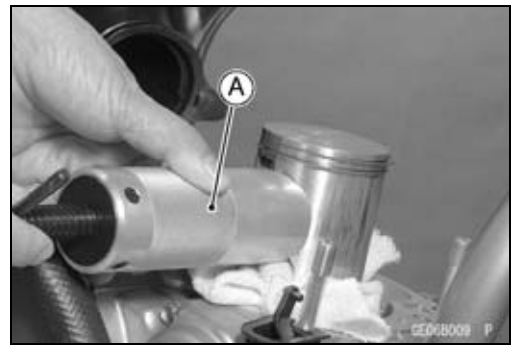
Torque - KIPS Cover Bolts: 2.5 N·m (0.25 kgf·m, 22 in·lb)



Piston Removal

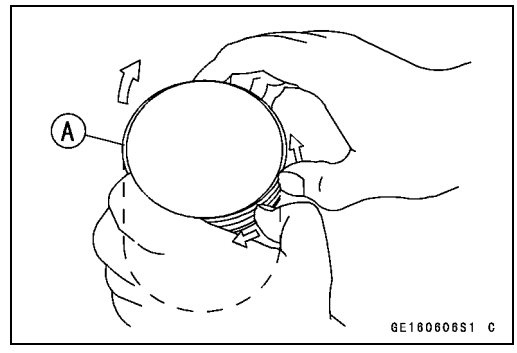
- Remove the cylinder.
- Stuff a clean cloth into the crankcase opening around the connecting rod so that no parts will fall into the crankcase.
- Remove one of the piston pin snap rings with needle nose pliers.
- Remove the piston by pushing the piston pin out the side from which the snap ring was removed. Use a piston pin puller assembly [A], if the pin is tight.

Special Tool - Piston Pin Puller Assembly: 57001-910



- Remove the piston ring(s).

○Carefully spread the ring [A] opening with your thumbs and then push up on the opposite side of the ring to remove it.



Piston Installation

- Stuff a clean cloth into the crankcase opening around the connecting rod so that no parts will fall into the crankcase.
- Scrape off any carbon of the piston, then lightly polish the piston with fine emery cloth.
- Clean carbon and dirt out of the piston ring groove using a suitable tool.

CAUTION
Carbon particles can be very abrasive to piston ring. Don't allow such particles to fall onto the cylinder walls.

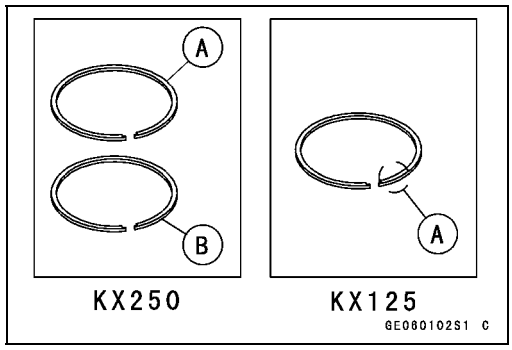
Cylinder

- When installing the piston ring on the piston, note the following:

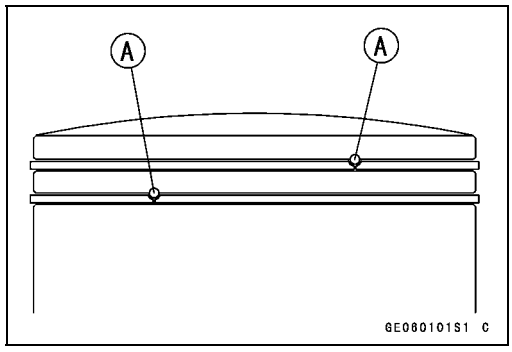
○For KX250, the top [A] and second [B] rings are identical.

○First fit one end of the piston ring against the pin in the ring groove, spread the ring opening with the other hand and then slip the ring into the groove.

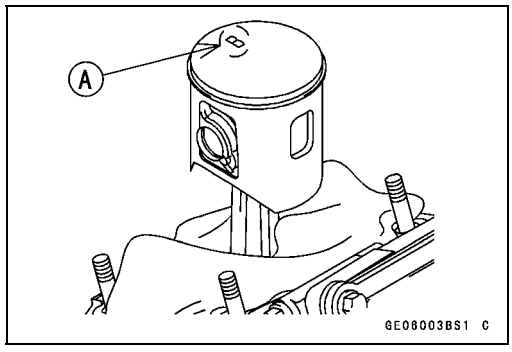
○For KX125, the piston ring have a “R” mark [A] on it upper surface.



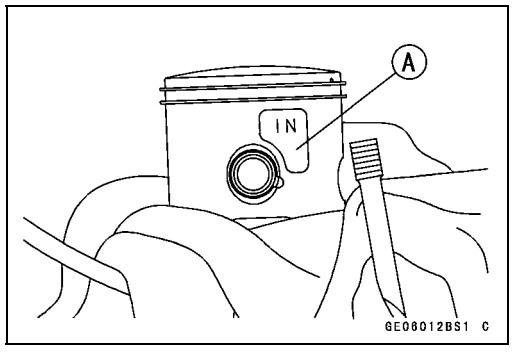
○Install the ring so that the pin [A] in the piston ring groove is between the ends of the piston ring.



- Apply 2-stroke engine oil to the connecting rod needle bearing and the piston pin.
- For KX125, install the piston so that the “Alphabet” marked side [A] faces the front side (Exhaust side) of the engine.



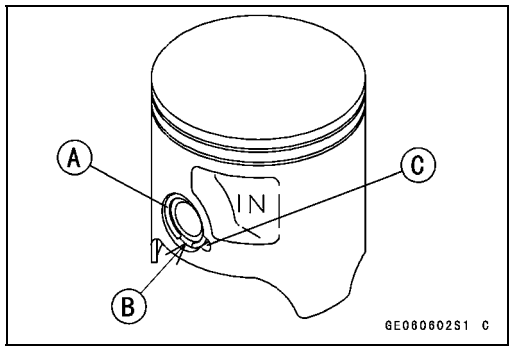
- For KX250, install the piston so that the “IN” marked side [A] faces the back side of the engine.



- When installing a piston pin snap ring [A], compress it only enough to install it and no more.

CAUTION

Do not reuse snap rings, as removal weakens and deforms them. They could fall out and score the cylinder wall.



- Fit a new piston pin snap ring into the side of the piston so that the ring opening [B] does not coincide with the notch [C] in the edge of the piston pin hole.

Cylinder Wear Inspection

- Refer to the Cylinder Wear Inspection in the Periodic Maintenance chapter.

Cylinder

Piston Diameter Measurement

- Refer to the Piston Diameter Measurement in the Periodic Maintenance chapter.

Piston/Cylinder Clearance

- Refer to the Piston/Cylinder Clearance in the Periodic Maintenance chapter.

Piston Ring, Piston Ring Groove Inspection

- Refer to the Piston Ring, Piston Ring Groove Inspection in the Periodic Maintenance chapter.

Piston Ring End Gap Inspection

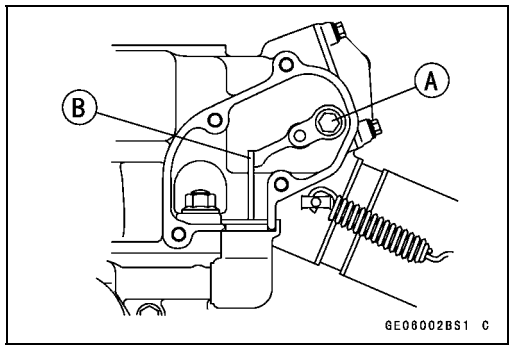
- Refer to the Piston Ring End Gap Inspection in the Periodic Maintenance chapter.

Piston, Piston Pin, Connecting Rod Wear Inspection

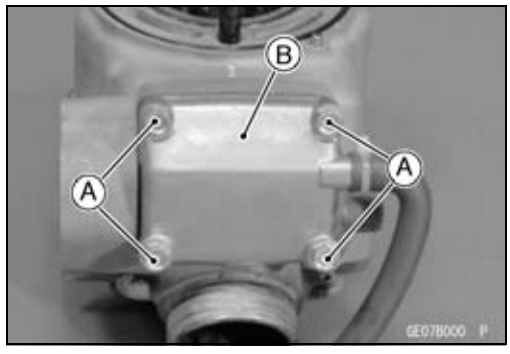
- Refer to the Piston, Piston Pin, Connecting Rod Wear Inspection in the Periodic Maintenance chapter.

Exhaust Valve (KIPS)

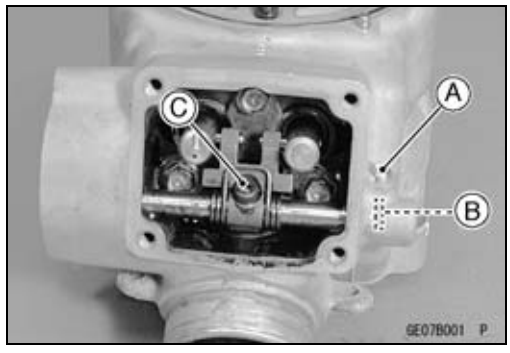
Exhaust Valve Removal (KX125 Model)



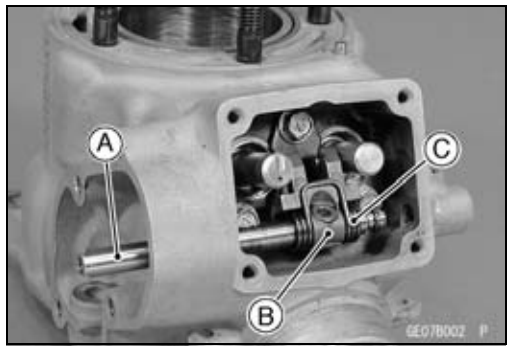
- Drain the coolant.
- Remove:
  Radiator (see Cooling System chapter)
  Muffler (see Muffler Removal)
  KIPS Cover (see Engine Right Side chapter)
  Bolt [A]
  Governor Shaft Lever [B]



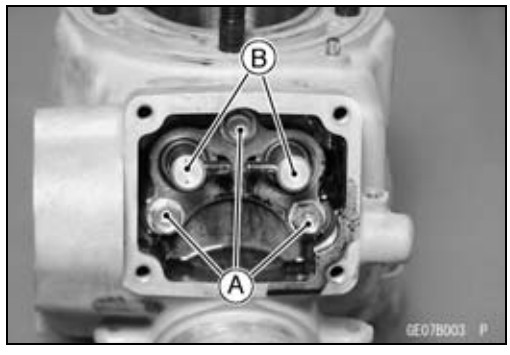
- Remove:
  Cylinder (see Cylinder Removal)
  Main Valve Cover Bolts [A]
  Main Valve Cover [B]



Stopper Pin Screw [A] and Stopper Pin [B]
Allen Bolt [C]



- Pull out the main exhaust valve shaft [A] and remove the main lever [B] with spring [C].

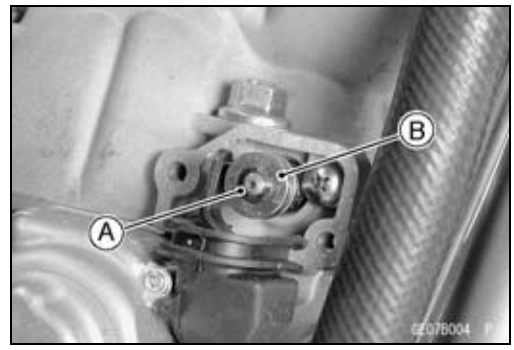


- Remove the exhaust valve retaining bolts [A].
- Pull out the exhaust valves [B].

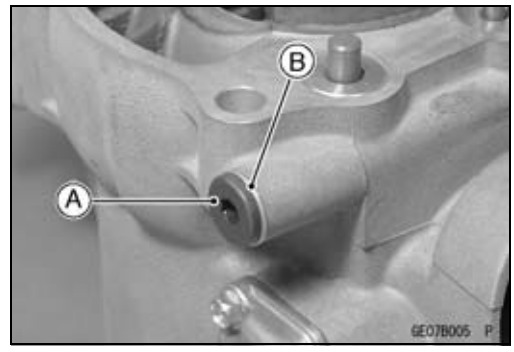
Exhaust Valve (KIPS)

Exhaust Valve Removal (KX250 Model)

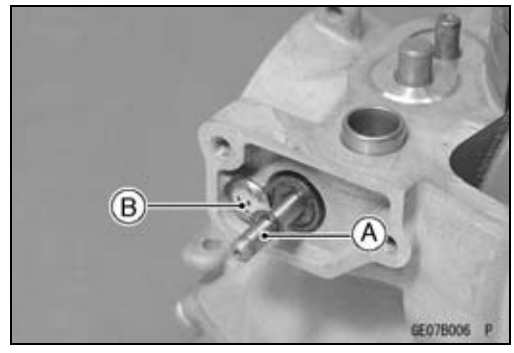
- Remove:
  Carburetor (see Fuel System chapter)
  Cylinder Head (see Cylinder Head Removal)
- Remove the KIPS cover at the cylinder
- Remove the E-clip [A] and operating rod collar [B] from the operating rod.
- Remove the cylinder (see Cylinder Removal).



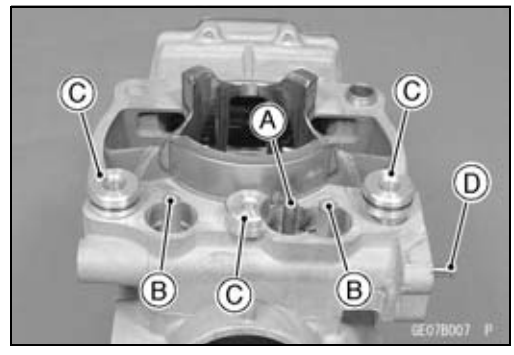
- Turn the cylinder up side down.
- Remove the plug [A] and the gasket [B] at the left side of the cylinder.



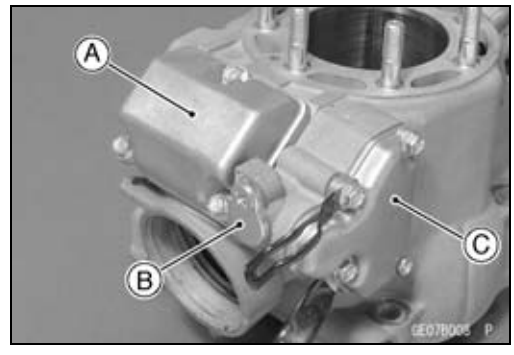
- Pull out the operating rod [A] as far as it goes.
- Remove the operating rod retaining screw [B].



- Remove the idle gear [A].
- Lift up the exhaust valves [B], and remove the valve guides [C].
- Lift up the exhaust valves, and pull out the operating rod [D]. Then take out the exhaust valves.

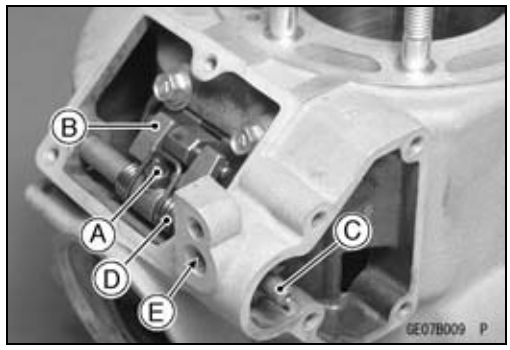


- Remove the main valve cover [A], main valve rod cover [B] and cylinder left cover [C] from the cylinder.

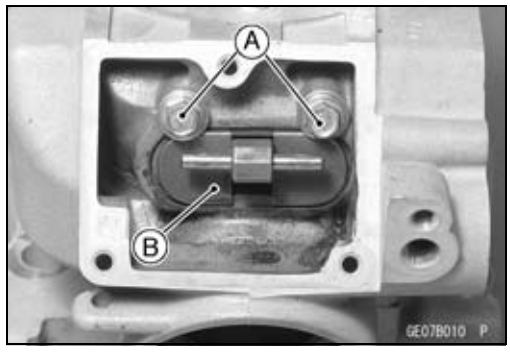


Exhaust Valve (KIPS)

- Unscrew the Allen bolt [A] from the main lever [B].
- Position the main exhaust valve full open, and pull out the main shaft [C].
- Set the main exhaust valve full closed position, and remove the main lever with spring [D].
- Pull out the main valve rod [E] from the cylinder.



- Unscrew the two main valve retaining bolts [A] and take out the main exhaust valve assembly [B] from the cylinder.



Exhaust Valve Installation (KX125 Model)

- Scrape out any carbon and clean the valves with a high flash-point solvent.
- Check the following for signs of damage:
  Exhaust Valves
  Oil Seal
  Gaskets

★If necessary, replace them with new ones.

- Apply a 2-stroke engine oil to the operation parts.
- Apply a high temperature grease to the oil seal lip.
- Insert the exhaust valves [A] so that their spherical parts [B] shall direct to downward.

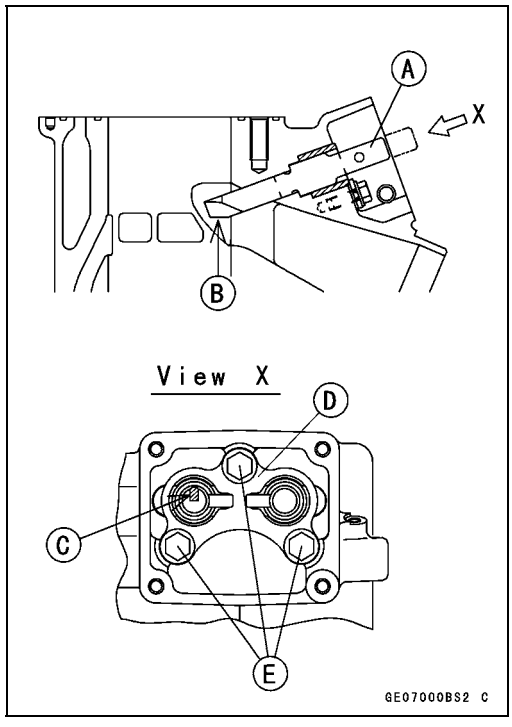
NOTE

○*There are left and right sides for the exhaust valves.*
○*Right exhaust valve has a identification slot [C] so that it shall be installed upward.*

- Install the retaining plate [D] and tighten exhaust valve retaining bolts [E].

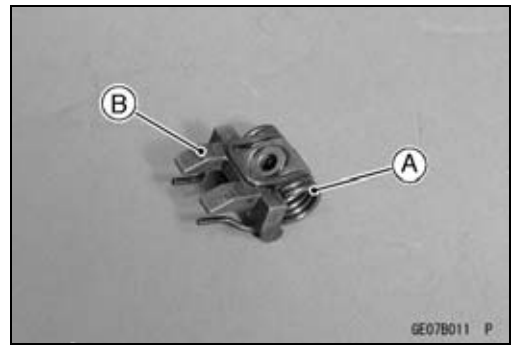
Torque - Exhaust Valve Retaining Bolts: 5.9 N·m (0.6 kgf·m, 52 in·lb)

- Check that the exhaust valves slide smoothly.

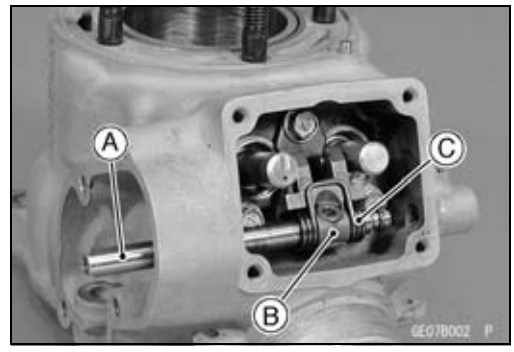


Exhaust Valve (KIPS)

- Fit the spring [A] to the main lever [B].



- Insert the main shaft [A] in the hole of the cylinder and through the holes in the main lever [B] with spring [C].



- Install the stopper pin [A].
- Tighten:

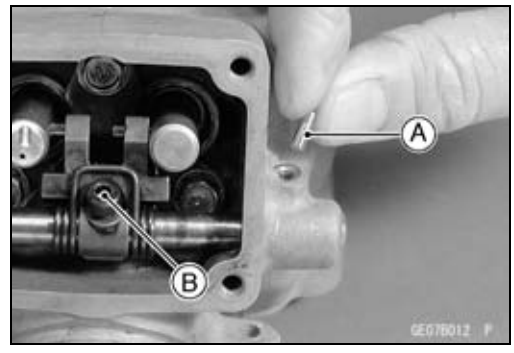
Torque - Stopper Pin Plug: 0.8 N·m (0.08 kgf·m, 69 in·lb)

- Apply a non-permanent locking agent to the Allen bolt [B].
- Fix the main lever to the main shaft with the Allen bolt.
- Tighten:

Torque - Main Lever Allen Bolt: 3.9 N·m (0.4 kgf·m, 35 in·lb)

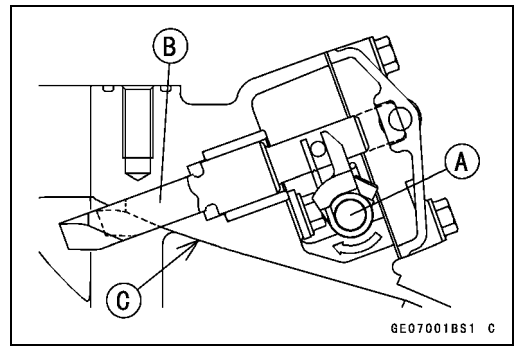
- Install the main valve cover.
- Tighten:

Torque - Main Valve Cover Bolts: 5.9 N·m (0.6 kgf·m, 52 in·lb)

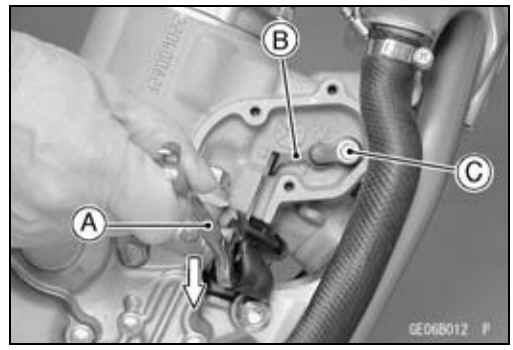


NOTE

○*When main shaft [A] turns clockwise and with the exhaust valves [B] fully opened position, check the end of exhaust valves and the exhaust ports [C] are aligned with.*



Exhaust Valve (KIPS)



- Install the cylinder (see Cylinder Installation).

Torque - Cylinder Nuts: 25 N·m (2.5 kgf·m, 18 ft·lb)

- Using the 14 mm (0.56 in.) spanner wrench [A], install the governor shaft lever [B] as shown.
- Tighten:

Torque - Governor Shaft Lever Mounting Bolt [C]: 6.9 N·m (0.7 kgf·m, 61 in·lb)

- Install the KIPS cover.
- Tighten:

Torque - KIPS Cover Bolts: 4.9 N·m (0.5 kgf·m, 43 in·lb)
KX125-M2~: 8.8 N·m (0.9 kgf·m, 78 in·lb)

- Install the removal parts.

Exhaust Valve Installation (KX250 Model)

- Remove any carbon and clean the valves with a high flash -point solvent.
- Check the following for signs of damage:
  Exhaust Valves
  Valve Operating Rod
  Oil Seal on Rod Seal Plug
  O-rings
  Gaskets

★If necessary, replace damaged or worn items with new ones.

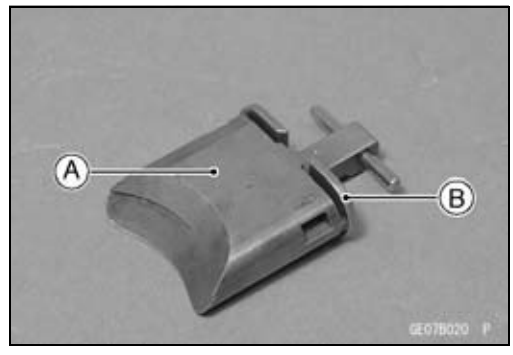
- Check the gasket on the left plug for signs of damage.

★If necessary, replace it with new one.

- Install the operating rod left side plug on the cylinder.

Torque - Operating Rod Left Side Plug: 22 N·m (2.2 kgf·m, 16.0 ft·lb)

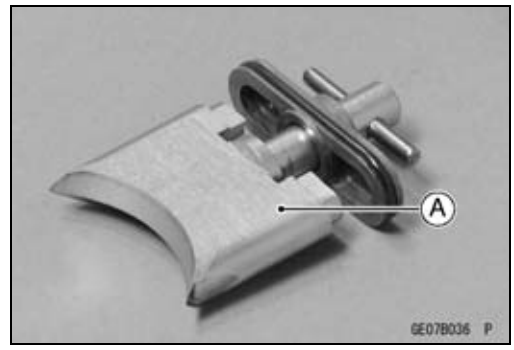
- Apply a 2-stroke engine oil to the following:
  Valve Guides (inside)
  Valve Operating Rod Journals
  Valve Operating Rod Rack
  Main Exhaust Valve Parts
- Apply a high temperature grease to the oil seal lip on the operating rod.



- Set up the main exhaust valve assembly as shown.
  Slide Valve [A]
  Valve Holder [B]
- Check the slide valve move smoothly.

Exhaust Valve (KIPS)

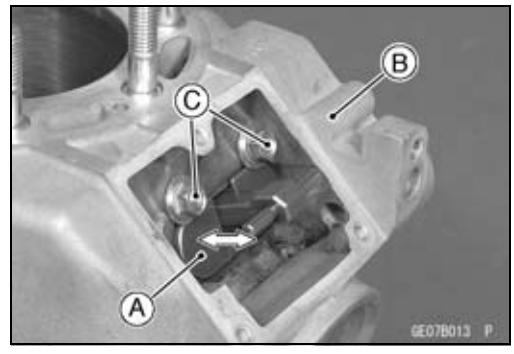
● For KX250-M2 model~; note the following.
○Apply a 2-stroke engine oil to the main exhaust valve [A].



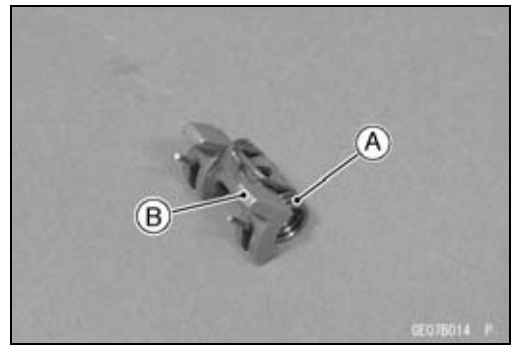
● Insert the main exhaust valve assembly [A] into the cylinder [B].
● Install the main valve retaining bolts [C] securely and tighten them.

Torque - Main Valve Retaining Bolts: 5.9 N·m (0.6 kgf·m, 52 in·lb)

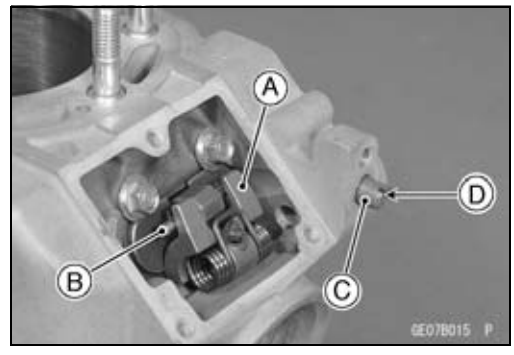
● Check the main exhaust valve assembly slide smoothly.



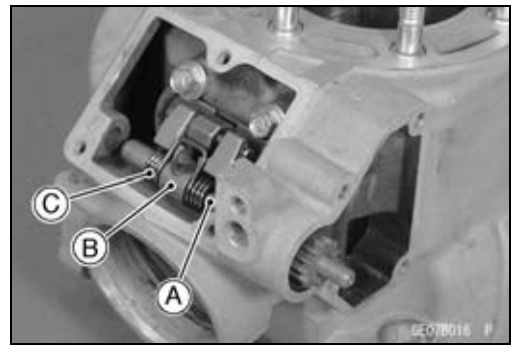
● Fit the spring [A] to the main lever [B].



● Install the main lever [A] with spring to the slide valve pin [B].
● Install the main valve rod [C] in the cylinder so that the grooved side [D] faces outward and the gear teeth face down.

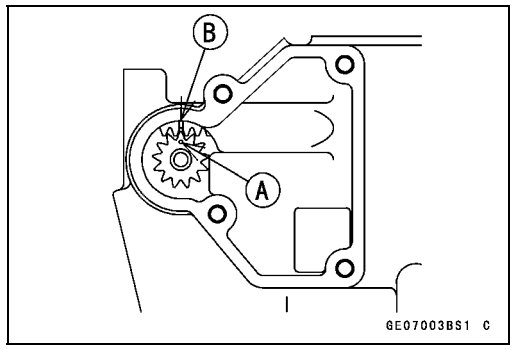


● Insert the main shaft [A] into the hole of the left upper end at the cylinder and through the hole in the main lever [B] and spring [C]. Then put the main shaft into the cylinder hole.

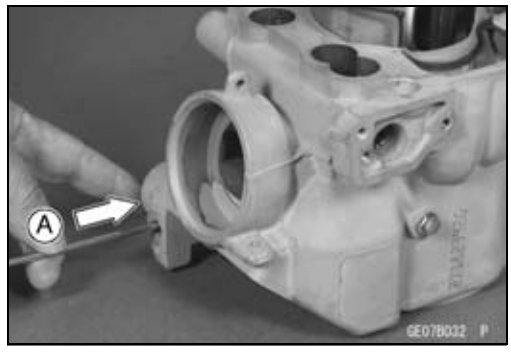


Exhaust Valve (KIPS)

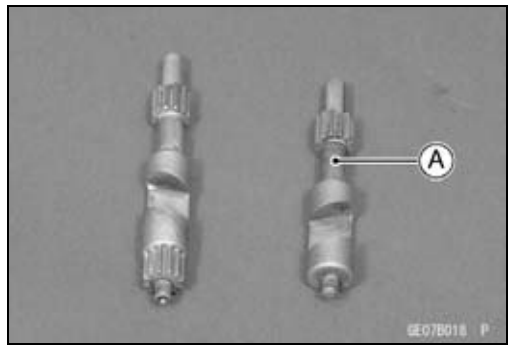
- Align the punch mark [A] on the main shaft gear with the groove [B] on the main valve rod.



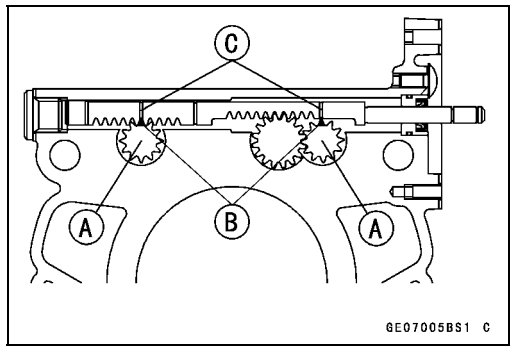
- Turn the cylinder upside down.
- Push [A] the main valve rod in until it is fully seated into the cylinder.



- Insert the sub exhaust valves partially into the cylinder so that the operating rod can pass underneath the gears. The right sub exhaust valve [A] is smaller than the left sub exhaust valve.



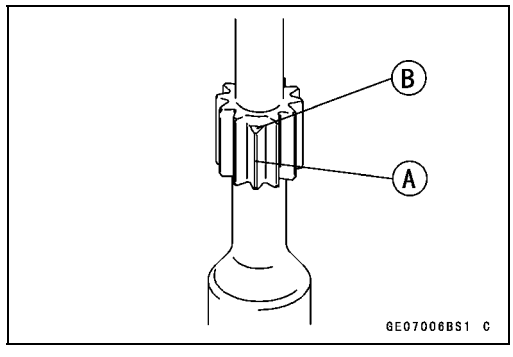
- Insert the operating rod until it is fully seated against the plug on the opposite side of the cylinder, and push the oil seal assembly into the cylinder.
- Align the punch mark [B] (marked with red paint) on the exhaust valve rods [A] with the grooves [C] in the operating rod.



NOTE

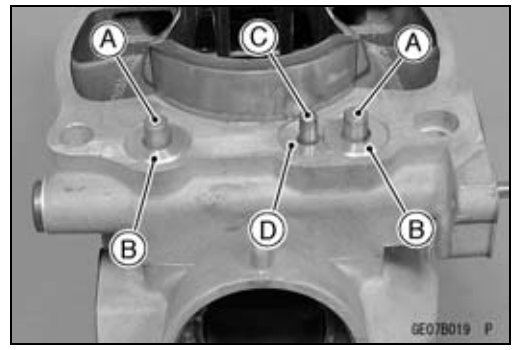
○*The marked tooth [A] is identified by its shape also.*

[B] Punch Mark (Red Panjab)



Exhaust Valve (KIPS)

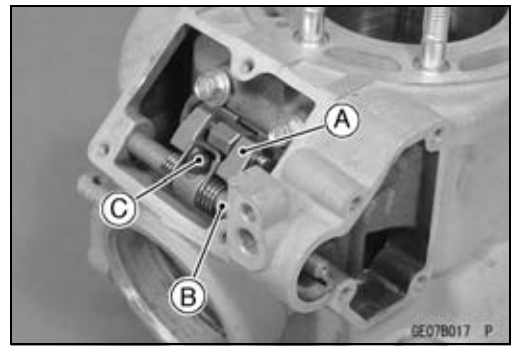
- Insert the idle gear.
- Apply high temperature grease to the O-ring.
- Mount the valve guides [B, D] on the sub exhaust valves [A] and idle gear [C].



- Apply a non-permanent locking agent to the Allen bolt.
- Fix the main lever [A] to the main shaft [B] with the Allen bolt [C].
- Tighten:

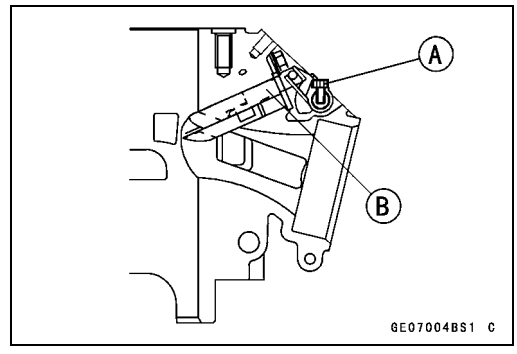
Torque - Main Lever Mounting Allen Bolt: 3.9 N·m (0.4 kgf·m, 35 in·lb)

- Check that the main exhaust valve assembly slide smoothly.

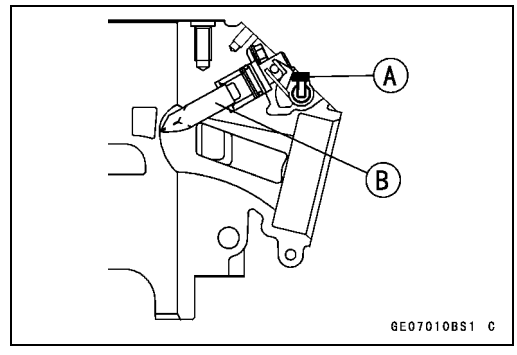


NOTE

○*When tighten the main lever mounting Allen bolt [A], main exhaust valve assembly [B] should be in fully closed position as shown.*

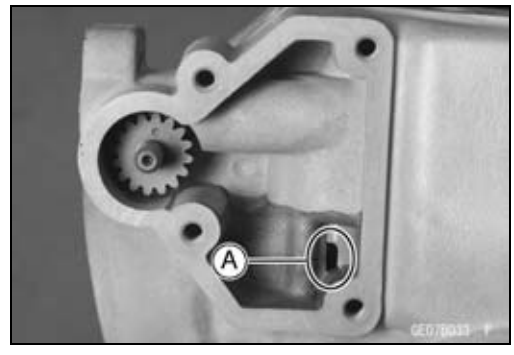


- For KX250-M2 model~; as shown in the figure.



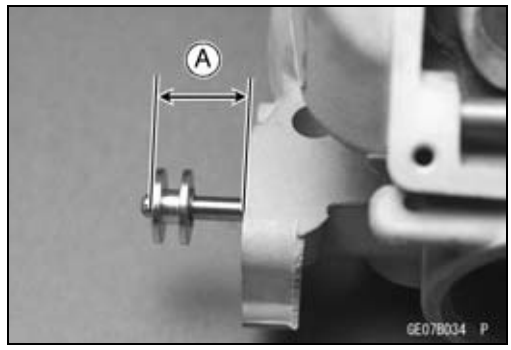
- There are three checks to ensure the sub exhaust valves are in the correct position:

○With the sub exhaust valves in the fully closed position the hole leading to the left side KIPS chamber is only partially open [A].

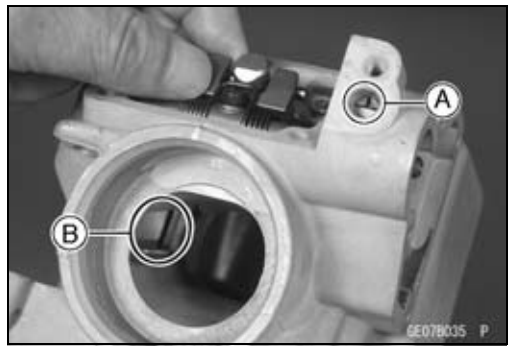


Exhaust Valve (KIPS)

○The distance from the top of the operating rod collar to the cylinder should be 14.5 ~ 15.5 mm (0.57 ~ 0.61 in.) [A].



○In the fully open position with the main valve rod flush with the cylinder [A], the sub exhaust valves will be aligned [B] with the sub exhaust ports.



- Check that the sub exhaust valves operate smoothly.
- Install the operating rod retaining screw securely.

Torque - Operating Rod Screw: 5.4 N·m (0.55 kgf·m, 48 in·lb)

- Install the main valve cover, main valve rod cover and cylinder left cover on the cylinder.

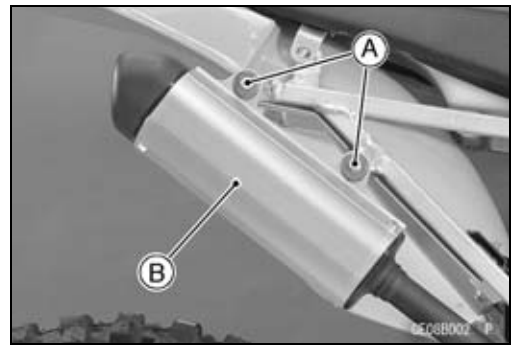
Torque - Main Valve Cover Bolts: 5.9 N·m (0.6 kgf·m, 52 in·lb)
Main Valve Rod Cover Screw: 5.9 N·m (0.6 kgf·m, 52 in·lb)

- Install the removed parts.

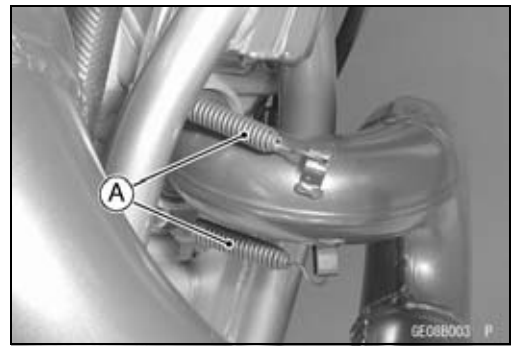
Muffler (Expansion Chamber, Silencer)

Muffler Removal

- Remove:
  Right Radiator Shroud
  Right Side Cover
- Remove the mounting bolts [A] and pull the silencer [B] off toward the rear.

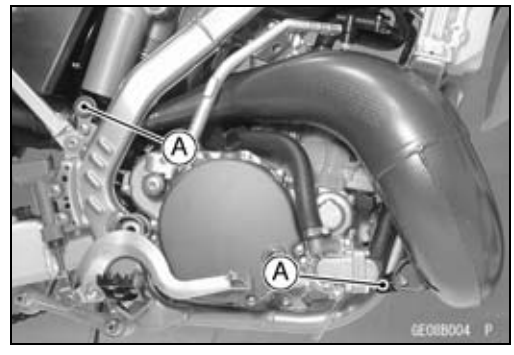


- Remove the exhaust pipe holding springs [A].



- Remove the muffler damper mounting bolts [A], and pull off the expansion chamber to the front ward.
- Remove the O-rings from the expansion chamber.

○For KX250: be sure to remove exhaust gasket.



- For KX125/250-M2 model~; as shown in the figure.

Muffler Installation

- Scrape any carbon out of the expansion chamber.
- Check the exhaust O-rings for signs of damage.

★If necessary, replace them with new ones.

Silencer Packing Change

- Refer to the Exhaust System in the Periodic Maintenance chapter.

Engine Right Side

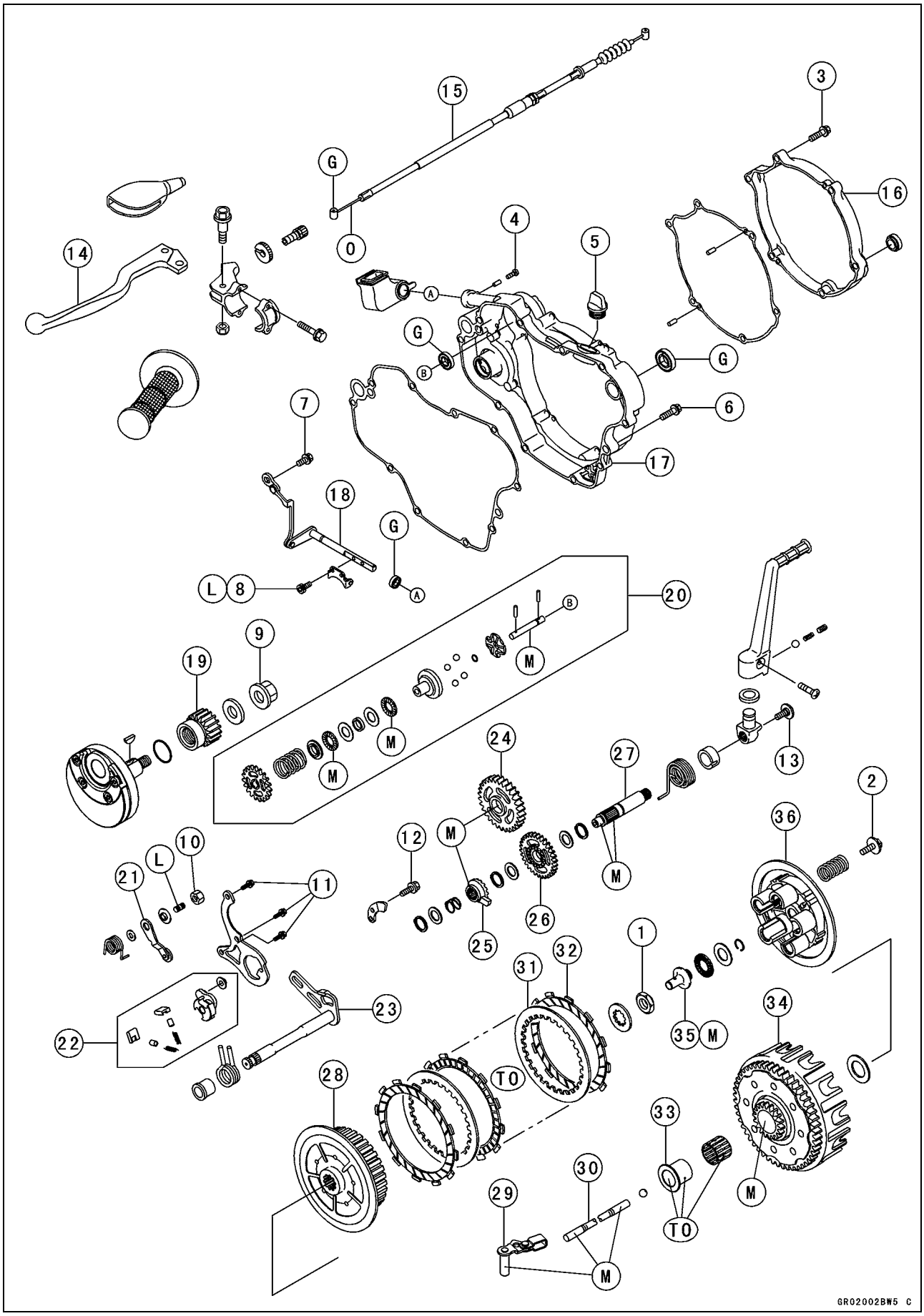
Table of Contents

Exploded View 6-2
Specifications 6-6
Special Tools 6-7
Clutch Cable 6-8
  Clutch Lever Free Play Check 6-8
  Free Play Adjustment 6-8
  Clutch Cable Removal 6-8
  Clutch Cable Installation 6-8
  Clutch Cable Lubrication and Inspection 6-8
Clutch Cover 6-9
  Clutch Cover Removal 6-9
  Clutch Cover Installation 6-9
Right Engine Cover 6-10
  Right Engine Cover Removal 6-10
  Right Engine Cover Installation 6-11
  Right Engine Cover Disassembly 6-12
  Exhaust Advancer Assembly Disassembly/Assembly 6-13
  Right Engine Cover Assembly 6-13
Clutch 6-15
  Clutch Removal 6-15
  Clutch Installation 6-16
  Friction and Steel Plates Wear, Damage Inspection 6-17
  Friction and Steel Plate Warp Inspection 6-17
  Spring Free Length Measurement 6-18
  Friction Plate/Clutch Housing Clearance 6-18
  Clutch Hub Spline Inspection 6-18
  Release Shift Removal 6-18
  Release Shaft Installation 6-19
External Shift Mechanism 6-20
  External Shift Mechanism Removal 6-20
  External Shift Mechanism Installation 6-20
  External Shift Mechanism Inspection 6-21
Primary Gear 6-22
  Primary Gear Removal 6-22
  Primary Gear Installation 6-22
Kickstarter 6-23
  Kickshaft Removal 6-23
  Kickstarter Assembly Disassembly/Assembly 6-23
  Idle Gear Removal 6-24
  Idle Gear Installation 6-24

6-2 ENGINE RIGHT SIDE

Exploded View

KX125:



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Clutch Hub Nut	98	10.0	72	
2	Clutch Spring Bolts	8.8	0.9	78 in·lb	
3	Clutch Cover Bolts	8.8	0.9	78 in·lb	
4	Governor Shaft Lever Positioning Plug	0.6	0.06	5 in·lb	
5	Oil Filler Cap	1.5	0.15	13 in·lb	
6	Right Engine Cover Bolts	8.8	0.9	78 in·lb	
7	Governor Shaft Lever Mounting Bolt	6.9	0.7	61 in·lb	
8	Exhaust Valve Advancer Lever Mounting Allen Bolt	3.9	0.4	35 in·lb	L
9	Primary Gear Nut	59	6.0	43	
10	Gear Set Lever Nut	8.8	0.9	78 in·lb	
11	Ratchet Plate Mounting Bolts	8.8	0.9	78 in·lb	
12	Kick Ratchet Guide Bolt	8.8	0.9	78 in·lb	
13	Kick Pedal Bolt	12	1.2	8.7	

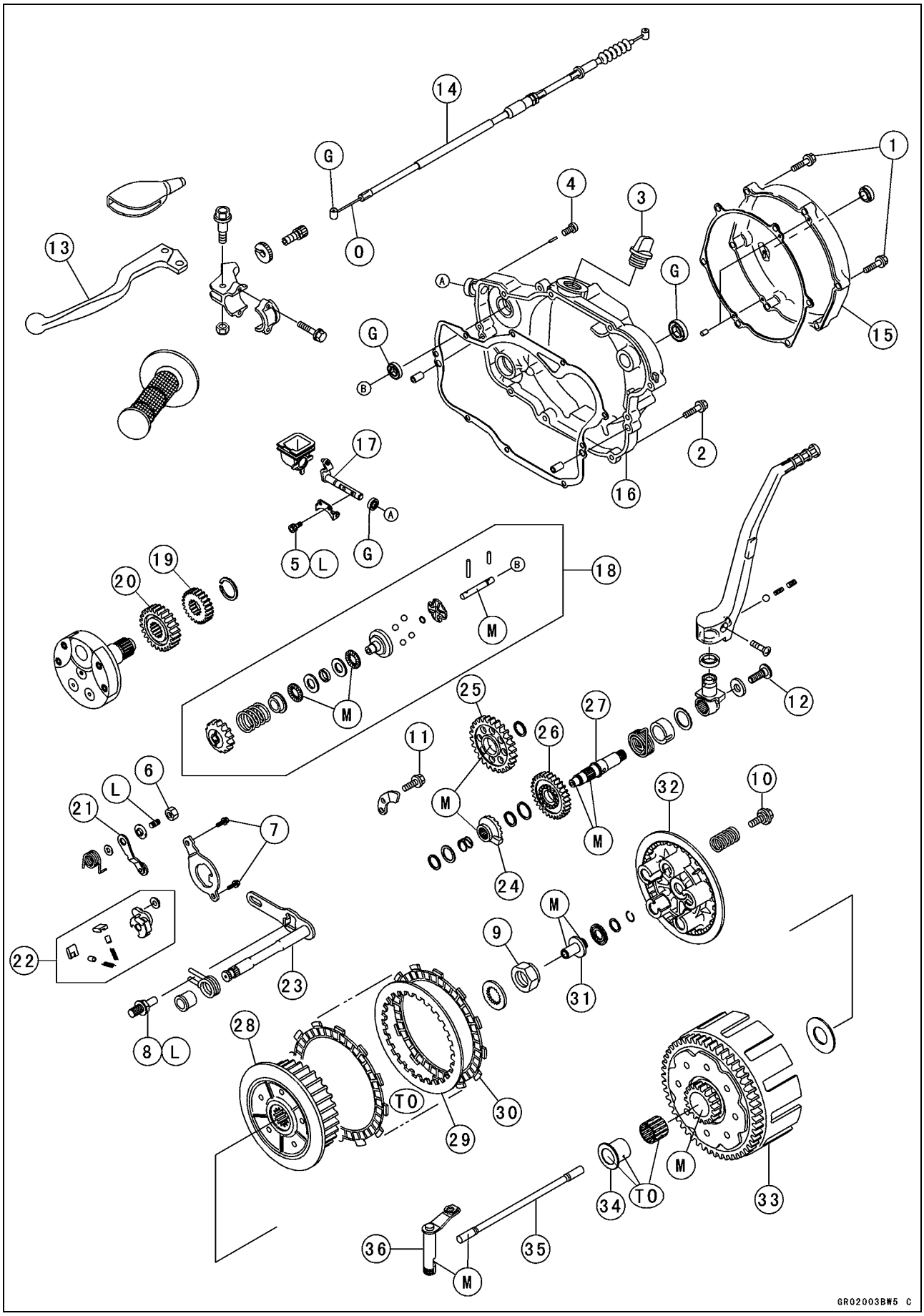
14. Clutch Lever
15. Clutch Cable
16. Clutch Cover
17. Right Engine Cover
18. Governor Shaft Lever
19. Primary Gear
20. Exhaust Advancer Assembly
21. Gear Set Lever
22. Ratchet Assembly
23. Shift Shaft
24. Kickstarter Idle Gear
25. Ratchet Gear
26. Kick Gear
27. Kick Shaft
28. Clutch Hub
29. Release Lever Shaft
30. Push Rod
31. Steel Plate
32. Friction Plate
33. Sleeve
34. Clutch Housing
35. Push Rod Holder
36. Clutch Pressure Plate

L: Apply a non-permanent locking agent to the threads.
M: Apply molybdenum disulfide grease
G: Apply high temperature grease.
O: Apply oil.
TO: Apply transmission oil.

6-4 ENGINE RIGHT SIDE

Exploded View

KX250:



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Clutch Cover Bolts	8.8	0.9	78 in·lb	
2	Right Engine Cover Bolts	8.8	0.9	78 in·lb	
3	Oil Filler Cap	1.5	0.15	13 in·lb	
4	Governor Shaft Lever Positioning Plug	0.6	0.06	5 in·lb	
5	Exhaust Valve Advancer Lever Mounting Allen Bolt	3.9	0.4	35 in·lb	L
6	Gear Set Lever Nut	8.8	0.9	78 in·lb	
7	Ratchet Plate Mounting Bolts	8.8	0.9	78 in·lb	
8	Exhaust Shift Mechanism Return Spring Pin	42	4.3	31	L
9	Clutch Hub Nut	98	10.0	72	
10	Clutch Spring Bolts	8.8	0.9	78 in·lb	
11	Kick Ratchet Guide Bolt	8.8	0.9	78 in·lb	
12	Kick Pedal Bolt	25	2.5	18	

13. Clutch Lever
14. Clutch Cable
15. Clutch Cover
16. Right Engine Cover
17. Governor Shaft Lever
18. Exhaust Advancer Assembly
19. Water Pump Driver Gear
20. Primary Gear
21. Gear Set Lever
22. Ratchet Assembly
23. Shift Shaft
24. Ratchet Gear
25. Kickstarter Idle Gear
26. Kick Gear
27. Kick Shaft
28. Clutch Hub
29. Steel Plate
30. Friction Plate
31. Push Rod Holder
32. Clutch Pressure Plate
33. Clutch Housing
34. Sleeve
35. Push Rod
36. Release Lever Shaft

M: Apply molybdenum disulfide grease.
G: Apply high temperature grease.
O: Apply oil.
TO: Apply transmission oil.
L: Apply a non-permanent locking agent to the threads.

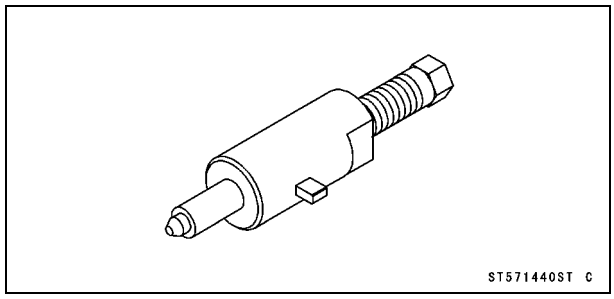
6-6 ENGINE RIGHT SIDE

Specifications

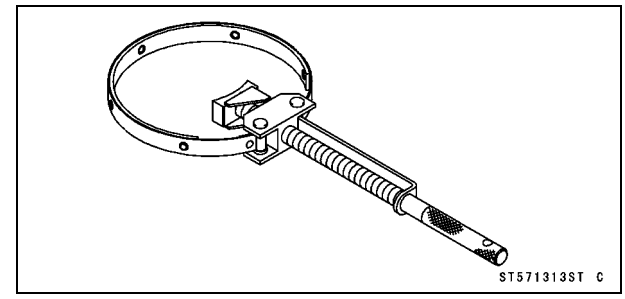
Item	Standard	Service Limit
Clutch		
Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	– – –
Friction Plate Thickness		
KX125	2.72 ~ 2.88 mm (0.107 ~ 0.113 in.)	2.6 mm (0.102 in.)
KX250	2.92 ~ 3.08 mm (0.115 ~ 0.121 in.)	2.8 mm (0.110 in.)
Steel Plate Thickness:		
KX125	1.5 ~ 1.7 mm (0.059 ~ 0.067 in.)	1.4 mm (0.055 in.)
KX250	1.46 ~ 1.74 mm (0.057 ~ 0.069 in.)	1.36 mm (0.054 in.)
Friction Plate Warp	Not more than 0.15 mm (0.006 in.)	0.3 mm (0.119 in.)
Steel Plate Warp	Not more than 0.2 mm (0.008 in.)	0.3 mm (0.119 in.)
Clutch Spring Free Length:		
KX125	46.8 mm (1.843 in.)	44.9 mm (1.768 in.)
KX250	35.0 mm (1.378 in.)	33.6 mm (1.323 in.)
Friction Plate/Clutch Housing Clearance		
KX125	0.04 ~ 0.55 mm (0.0016 ~ 0.0217 in.)	0.9 mm (0.0354 in.)
KX250	0.15 ~ 0.45 mm (0.0059 ~ 0.0177 in.)	0.8 mm (0.0315 in.)

Special Tools

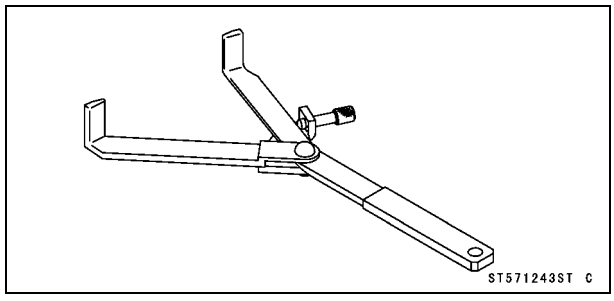
Drum Pusher, ϕ24:
57001-1440



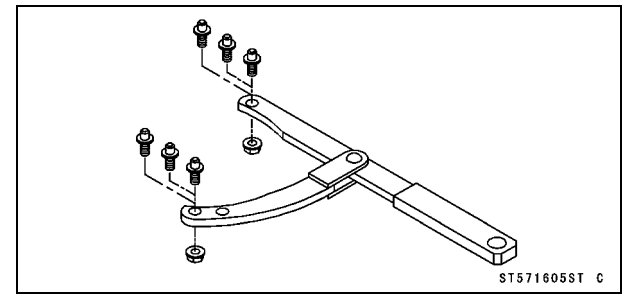
Flywheel Holder:
57001-1313



Clutch Holder:
57001-1243



Flywheel & Pulley Holder:
57001-1605



Clutch Cable

Due to friction plate wear and clutch cable stretch over a long period of use, the clutch must be adjusted in accordance with the Periodic Maintenance Chart.

⚠ WARNING

To avoid a serious burn, never touch the hot engine or exhaust chamber during clutch adjustment.

Clutch Lever Free Play Check

- Refer to the Clutch Lever Free Play Check in the Periodic Maintenance chapter.

Free Play Adjustment

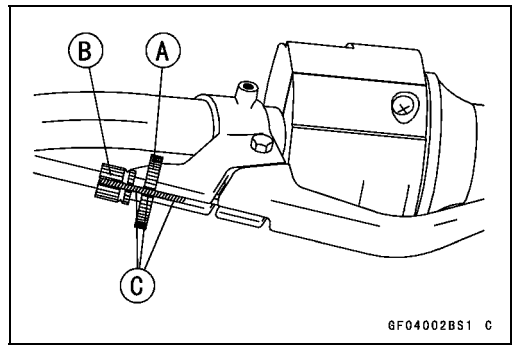
- Refer to the Clutch Lever Free Play Adjustment in the Periodic Maintenance chapter.

Clutch Cable Removal

- Slide the dust cover out of place.
- Loosen the locknut at the upper of the cable, and turn the adjusting nut to give the cable plenty of play.
- Loosen the knurled locknut [A] at the clutch lever, and screw in the adjuster [B].
- Line up the slots [C] in the clutch lever, knurled locknut, and adjuster, and then free the cable from the clutch lever.

○For KX125, remove the magneto cover (see Release Shaft Removal).

- Free the clutch inner cable tip from the clutch release lever.



CAUTION

Do not remove the clutch release shaft unless it is absolutely necessary. If removed, release shaft oil seal must be replaced with a new one.

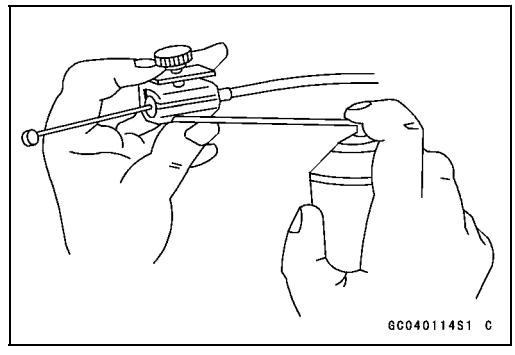
- Pull the clutch cable out of the frame.

Clutch Cable Installation

- Run the clutch cable according to the Cable, Harness, Hose Routing section of the Appendix chapter.
- Adjust the clutch cable (see Free Play Adjustment).

Clutch Cable Lubrication and Inspection

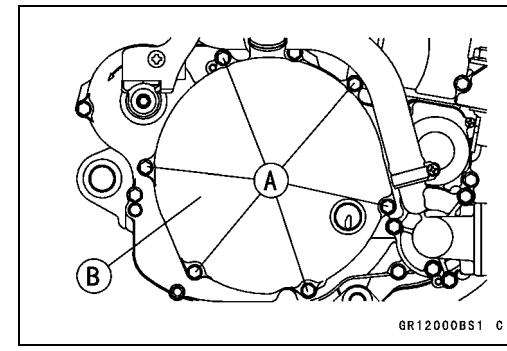
- Lubricate the clutch cable using the pressure cable luber in accordance with the Periodic Maintenance Chart.
- With the cable disconnected at both ends, the cable should move freely within the cable housing (see Appendix chapter).



Clutch Cover

Clutch Cover Removal

- Drain the transmission oil (see Engine Bottom End/Transmission chapter).
- Remove the brake pedal (see Brake chapter).
- Unbolt the clutch cover bolts [A], and take off the clutch cover [B].



Clutch Cover Installation

- There are two knock pins of the mating surfaces of right engine cover and clutch cover.
- Replace the clutch cover gasket with a new one.
- Tighten the clutch cover bolts.

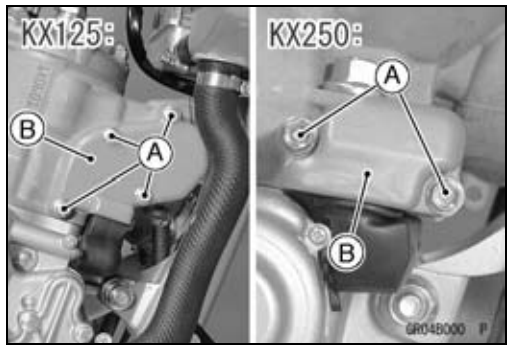
Torque - Clutch Cover Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)

- Install the brake pedal (see Brake chapter)

Right Engine Cover

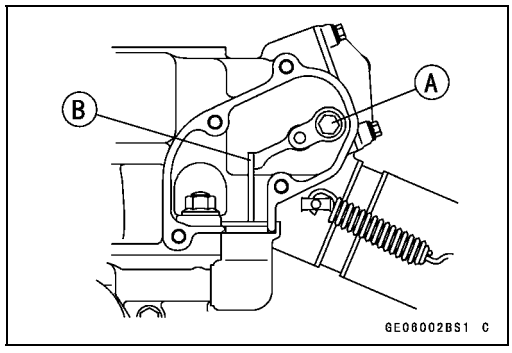
Right Engine Cover Removal

- Removal:
  Transmission Oil (drain) (see Engine Bottom End/Transmission chapter)
  Coolant (drain) (see Cooling System chapter)
  Cooling Hose Lower end
  Kick Pedal
  Brake Pedal
  Muffler



- Unscrew the KIPS cover bolt [A] and remove the KIPS cover [B] from the right side of the cylinder.

- Remove the governor shaft lever in accordance with the following procedure.

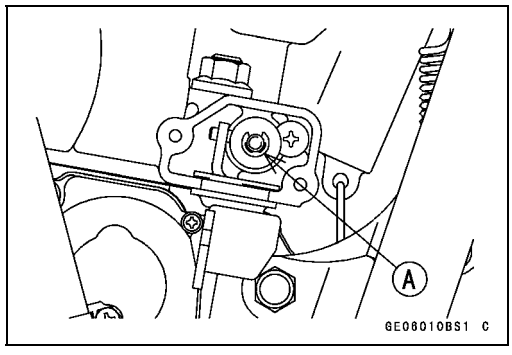


KX125

○Remove the bolt [A] and pull out the governor shaft lever [B] from the main shaft.

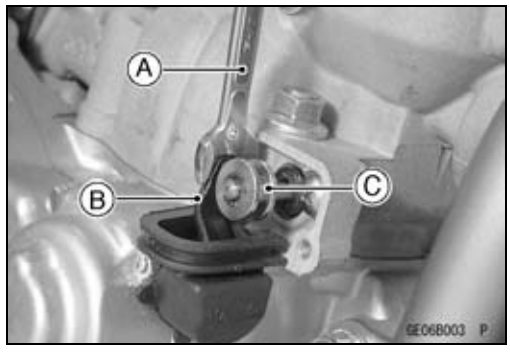
KX250

○Remove the E-clip [A] from the operating rod.

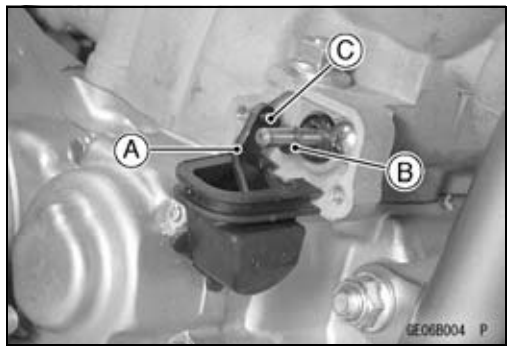


○Put a 9 mm (0.35 in.) spanner wrench [A] on the governor shaft lever upper end.

○Turn the governor shaft lever [B] counterclockwise with the wrench, and take off the operating rod collar [C] by pushing the operating rod into the cylinder.

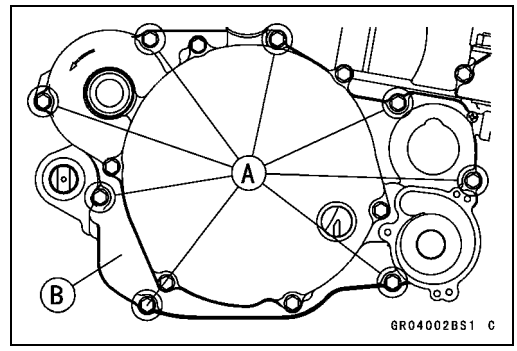


○Before pulling the governor shaft lever [A] free, turn the remaining E-clip [B] to a suitable position as shown in the figure to prevent the governor shaft lever boss [C] and the E-clip from hitting.



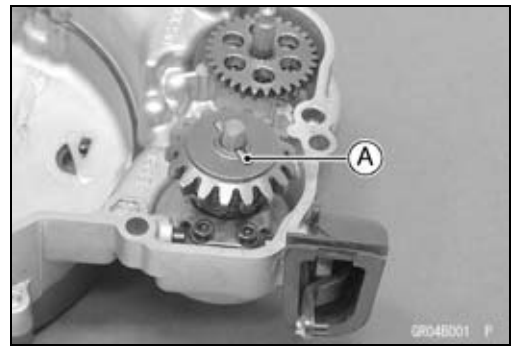
Right Engine Cover

○Remove the cover bolts [A] and take off the right engine cover [B] and gasket.



Right Engine Cover Installation

- There are two knock pins of the mating surfaces of the crankcase and right engine cover.
- In case the exhaust advancer assembly has been removed, install it and turn the gear so as to level the gear drive pin [A].



CAUTION
If the gear drive pin is not positioned level, it may fall out when installing the right engine cover.

- Apply a high-temperature grease to the kick pedal oil seal lips and kick shaft spline.
- Tighten the right engine cover bolts and kick shaft mounting bolt.

Torque - Right Engine Cover Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)
Kick Pedal Mounting Bolt,KX125: 12 N·m (1.2 kgf·m, 8.7 ft·lb)
KX250: 25 N·m (2.5 kgf·m, 18 ft·lb)

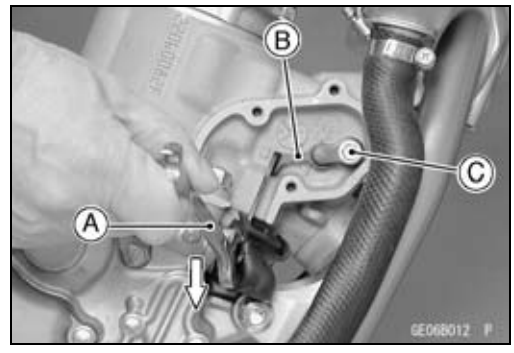
KX125

- Using the 14 mm (0.56 in.) spanner wrench [A], install the governor shaft lever [B] as shown.
- Tighten:

Torque - Governor Shaft Lever Mounting Bolt [C]: 6.9 N·m (0.7 kgf·m, 61 in·lb)

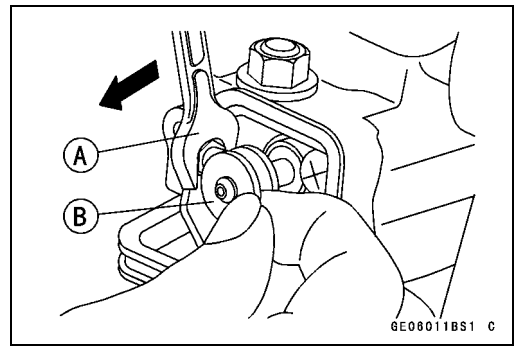
- Install the KIPS cover.
- Tighten:

Torque - KIPS Cover Bolts: 4.9 N·m (0.5 kgf·m, 43 in·lb)
(KX125-M2~): 8.8 N·m (0.9 kgf·m, 78 in·lb)



KX250

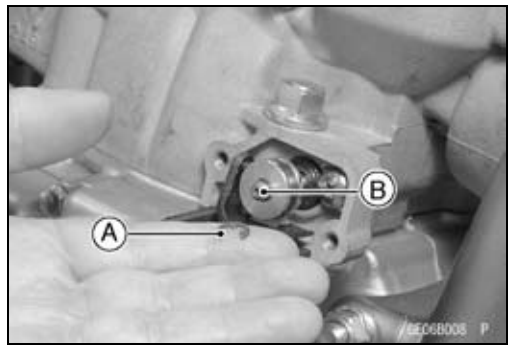
- Put a 9 mm (0.35 in.) spanner wrench [A] on the governor shaft lever upper end.
- Turn the governor shaft lever counterclockwise with the wrench and fit the groove of the operating rod collar [B] to the boss of the governor shaft lever, and install the collar on the operating rod while turning the governor shaft lever clockwise.



Right Engine Cover

- After installing the collar, install the E-clip [A] on the operating rod [B].
- Tighten the KIPS cover bolts.

Torque - KIPS Cover Bolts: 2.5 N·m (0.25 kgf·m, 22 in·lb)



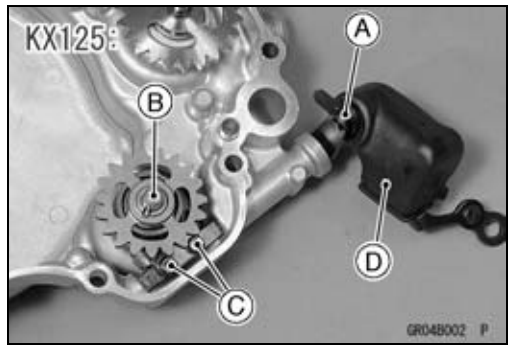
- Apply grease to the inside of the brake pedal boss.
- Tighten the brake pedal mounting bolt.

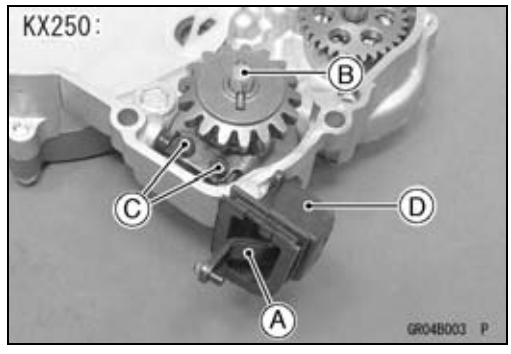
Torque - Brake Pedal Mounting Bolt: 25 N·m (2.5 kgf·m, 18 in·lb)

- Fill the cooling system with coolant (see Cooling System chapter).
- Fill the transmission with oil (see Engine Bottom End/Transmission chapter).
- Check the rear brake.

Right Engine Cover Disassembly

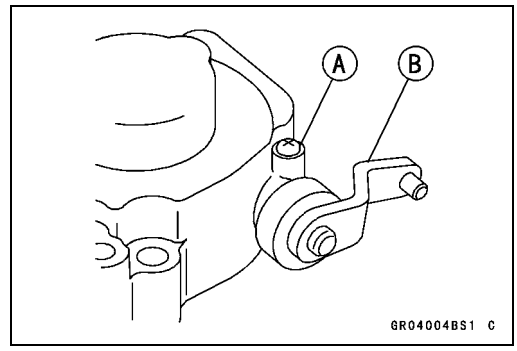
- Remove the right engine cover.
- Turn the governor shaft lever [A] to the left, and remove the exhaust advancer assembly [B].
- Remove the Allen bolts [C], and take off the advancer lever.
- Pull the dust cover [D].





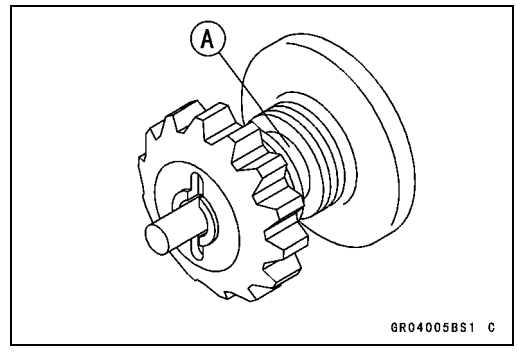
Right Engine Cover

- Remove the plug screw [A] and take out the governor shaft lever positioning pin.
- Pull the governor shaft lever [B] out of the right engine cover.
- Pull off the water pump shaft (see Cooling System chapter).

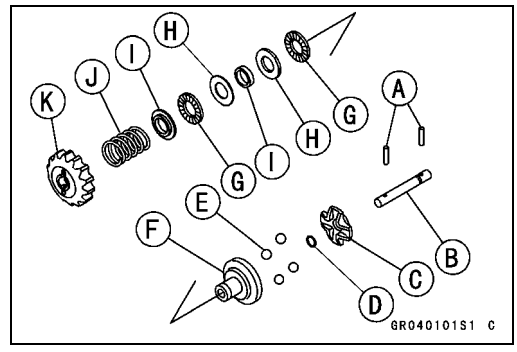


Exhaust Advancer Assembly Disassembly/Assembly

- The exhaust advancer assembly [A] consists of the following parts.



A. Pins
B. Rod
C. Guide
D. O-ring
E. Steel Balls
F. Holder
G. Needle Bearing
H. Spacer
I. Collar
J. Spring
K. Gear



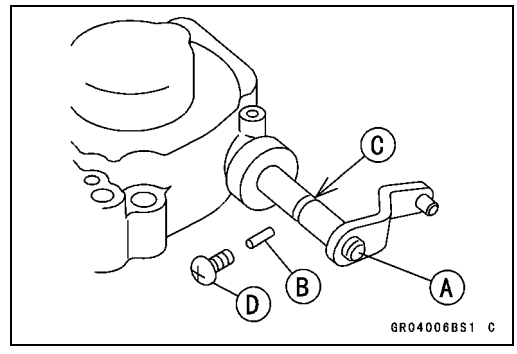
- Check the exhaust advancer assembly parts for damage.
★Any damaged parts should be replaced with new ones.
- When assembling, apply molybdenum disulfide grease between the rod and inside/outside diameter parts of the holder, needle bearing and spacer .

Right Engine Cover Assembly

- Apply high temperature grease to the oil seal lips before inserting the governor shaft lever.
- Apply molybdenum disulfide grease to the surface of the lever shaft, and insert the governor shaft lever [A] into the right engine cover hole.
- Insert the positioning pin [B] into the hole then fit it to the grove [C] of the shaft.
- Tighten the governor shaft lever positioning plug screw [D] securely.

Torque - Governor Shaft Lever Positioning Plug: 0.6 N·m (0.06 kgf·m, 5 in·lb)

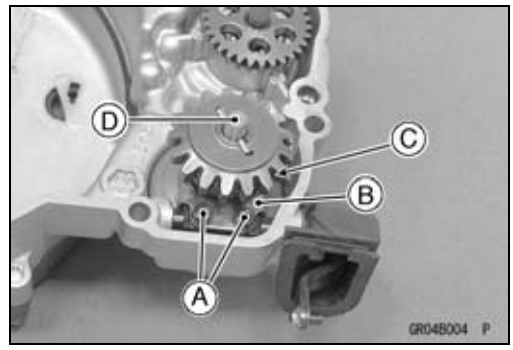
- Install the dust cover.



Right Engine Cover

- Apply a non-permanent locking agent to the threads of the advancer mounting . Allen bolts.
- Tighten the advancer lever mounting Allen bolts [A].

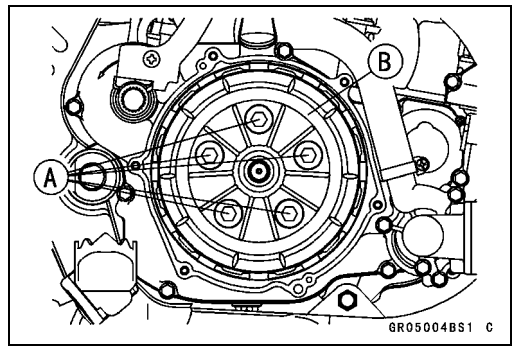
  Torque - Advancer Lever Mounting Allen Bolts: 3.9 N·m (0.4 kgf·m, 35 in·lb)
- Fit the advancer lever pin [B] into the groove [C] on the exhaust advancer assembly [D], and install the assembly in the engine cover while turning the governor shaft lever to the left.



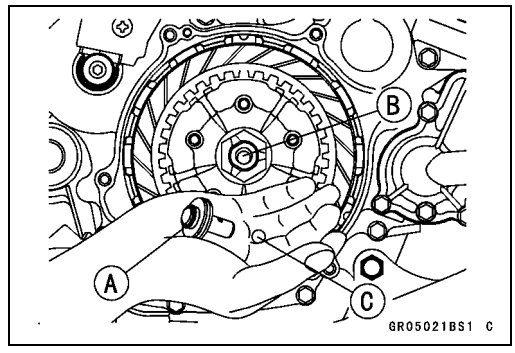
Clutch

Clutch Removal

- Remove the clutch cover (see Clutch Cover Removal).
- Remove the clutch spring bolts [A], spring, and clutch pressure plate [B].



- Remove the push rod holder assembly [A], friction plates, steel plates, and push rod [B].
- For KX125, Remove steel boll [C].

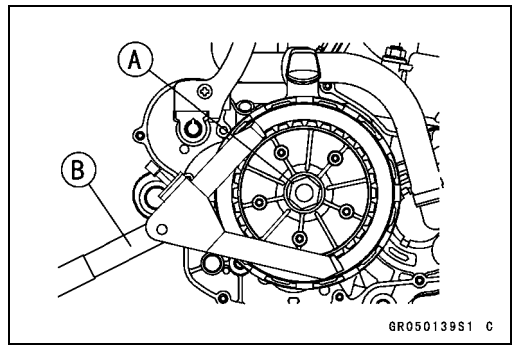


- Remove the clutch hub nut [A] and washer.

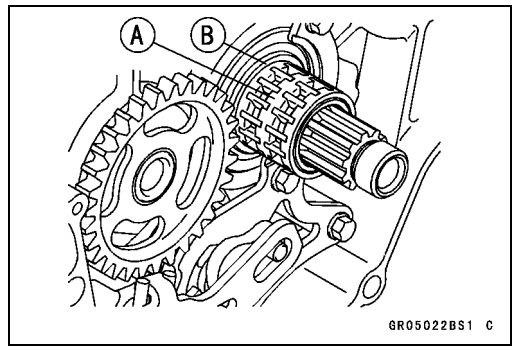
NOTE

○*Use the clutch holder [B] to prevent the clutch hub from rotating.*

Special Tool - Clutch Holder: 57001-1243



- Remove the clutch hub and housing, needle bearing [A], and sleeve [B].

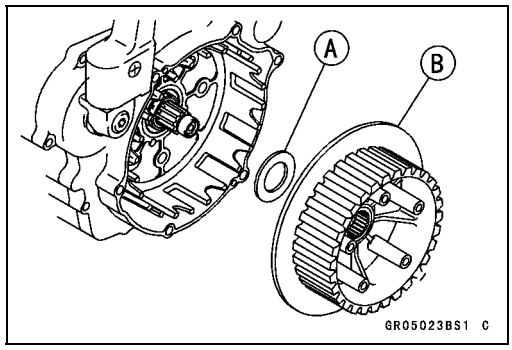


Clutch

Clutch Installation

- Apply molybdenum disulfide grease to the outside of the sleeve.
- Apply transmission oil to the inside of the clutch housing gear and kickstarter driven gear.
- Install the sleeve, needle bearing, clutch hub and housing.

○Do not forget to install the thrust washer [A] before installing the clutch hub [B].



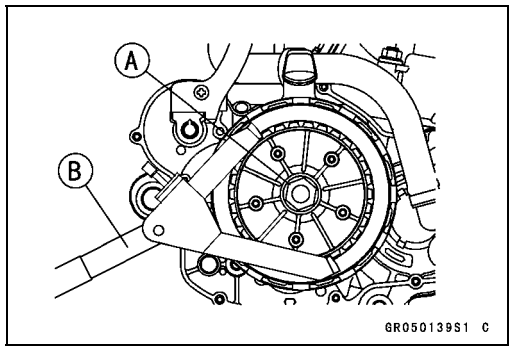
- Tighten the clutch hub nut [A].

Torque - Clutch Hub Nut: 98 N·m (10 kgf·m, 72 ft·lb)

NOTE

○*Use the clutch holder [B] to prevent the clutch hub from rotating.*

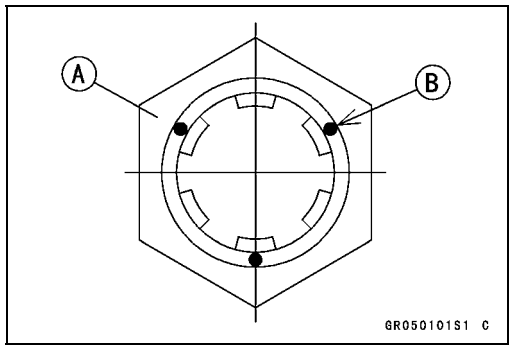
Special Tool - Clutch Holder: 57001-1243



- For KX250, stake the clutch hub nut [A] in three points [B] to the spline grooves to secure it in place.

CAUTION

When staking the nut, be careful not to apply shock to the shaft and bearings. Such a shock could damage the shaft and/or bearings.



- Install the friction plates and steel plates, starting with a friction plate and alternating them. Finishing with a friction plate.

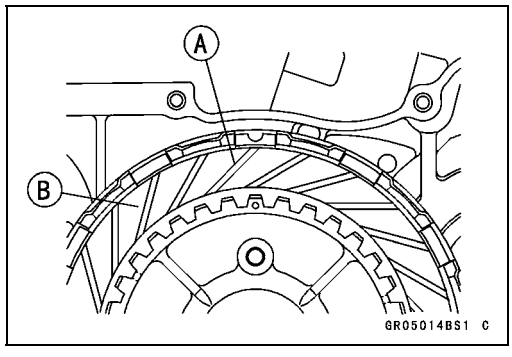
CAUTION

If dry steel plates and friction plates are installed, apply transmission oil to the surfaces of each plate to avoid clutch plate seizure.

- For KX125, the grooves [A] on the friction plate surfaces are cut tangentially and radially, install the first and last friction plates [B] so that the grooves run toward the center in the direction of the clutch housing rotation (counterclockwise viewed from the engine right side).
- Apply molybdenum disulfide grease to the rubbing portion of the push rod holder.
- Tighten the clutch spring bolts fixing the flywheel with the special tool.

Torque - Clutch Spring Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)

Special Tool - Flywheel Holder: 57001-1313

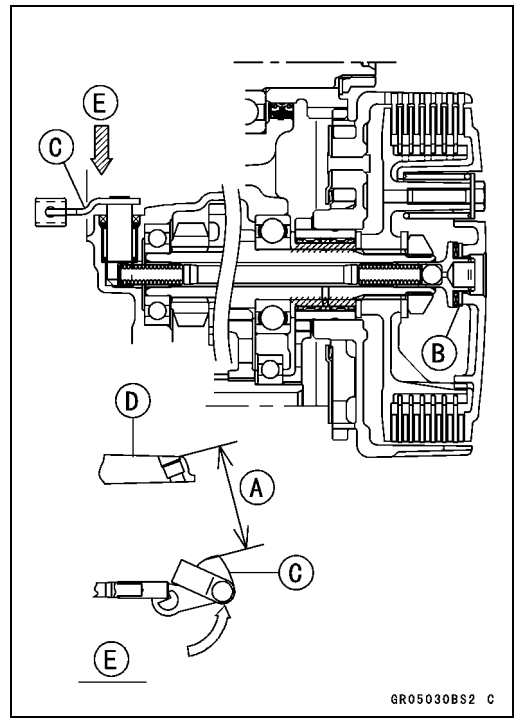


Clutch

● For KX125; check the release shaft lever positions [A].
○Remove the magneto cover.
○Pushing the release shaft lever [C] lightly upward measure the distance between the release shaft lever and clutch cable set position of crankcase [D].
View [E]

Release Shaft Lever Position
Standard:
46.9 ~ 53.9 mm (1.85 ~ 2.12 in.)(KX125-M1)
49.0 ~ 55.6 mm (1.93 ~ 2.19 in.)(KX125-M2 ~)

★If the lever position is not within the standard, select the correct thickness of adjusting washer(s) [B] according to the tables shown.



Adjusting Washers

Thickness	Part NUMBER
1.5 mm (0.06 in.)	92200-1548
1.0 mm (0.04 in.)	92200-0045

Release Shaft Lever Position and Adjusting Washer Selection

(KX125-M1)

Position Distance	Washer Thickness	Qty
46.9 mm to 53.9 mm (1.85 ~ 2.12 in.) (Standard)	1.5 mm (0.06 in.)	1
More than 53.9 mm (2.12 in.)	1.0 mm (0.04 in.)	1
Less than 46.9 mm (1.85 in.)	1.0 mm (0.04 in.)	2

(KX125-M2 ~)

Position Distance	Washer Thickness	Qty
49.0 mm to 55.6 mm (1.93 ~ 2.19 in.) (Standard)	1.5 mm (0.06 in.)	1
More than 55.6 mm (2.19 in.)	1.0 mm (0.04 in.)	1
Less than 49.0 mm (1.93 in.)	1.0 mm (0.04 in.)	2

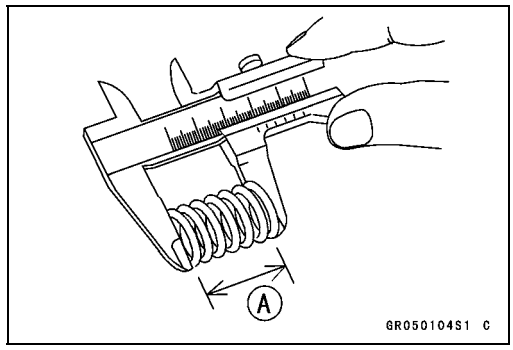
★Remove the push rod holder assembly as necessary and reinstall the clutch.
○Install the magneto cover.

Friction and Steel Plates Wear, Damage Inspection
● Refer to the Friction and Steel Plates Wear, Damage Inspection in the Periodic Maintenance chapter.

Friction and Steel Plate Warp Inspection
● Refer to the Friction and Steel Plate Wrap Inspection in the Periodic Maintenance chapter.

Clutch

Spring Free Length Measurement



- Since the spring [A] becomes shorter as it weakens, check its free length to determine its condition.

★If any of the springs is shorter than the service limit, it must be replaced.

Clutch Spring Free Length

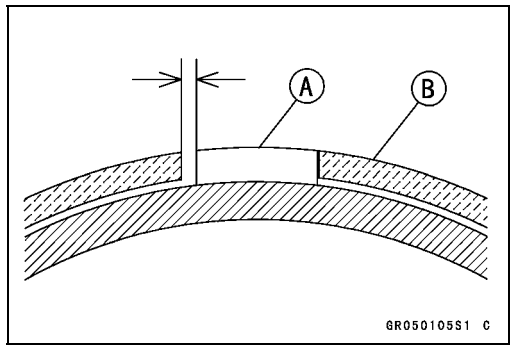
KX125

Standard:	**46.8 mm (1.843 in.)**
Service Limit:	**44.9 mm (1.768 in.)**

KX250

Standard:	**35 mm (1.378 in.)**
Service Limit:	**33.6 mm (1.323 in.)**

Friction Plate/Clutch Housing Clearance



- Measure the clearance between the tangs [A] on the friction plate and the fingers [B] of the clutch housing.

★If this clearance is excessive, the clutch will be noisy.

★If the clearance exceeds the service limit, replace the friction plates.

Friction Plate/Clutch Housing Clearance

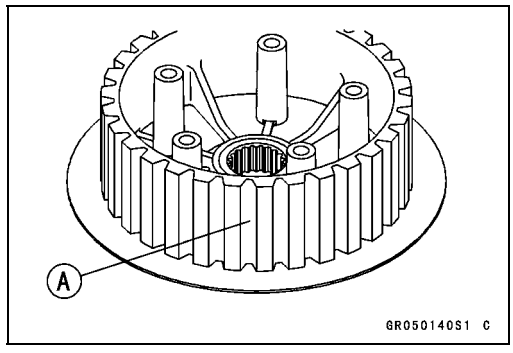
KX125:

Standard:	**0.04 ~ 0.55 mm (0.0016 ~ 0.0217 in.)**
Service Limit:	**0.9 mm (0.0354 in.)**

KX250:

Standard:	**0.15 ~ 0.45 mm (0.0059 ~ 0.0177 in.)**
Service Limit:	**0.8 mm (0.0315 in.)**

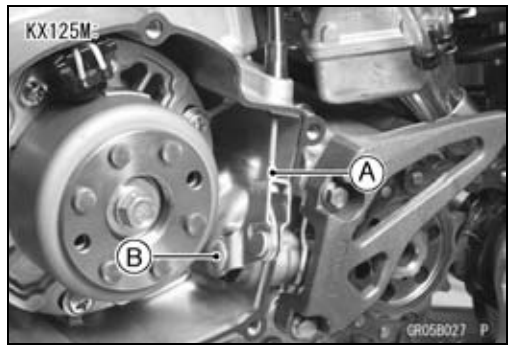
Clutch Hub Spline Inspection



- Visually inspect where the teeth on the steel plates wear against the splines [A] of the clutch hub.

★If there are notches worn into the splines, replace the clutch hub. Also, replace the clutch plates if their teeth are damaged.

Release Shift Removal



- Remove the clutch (see Clutch Removal).
- Remove the clutch cable upper end (see Clutch Cable Removal).

○For KX125; remove the magneto cover.

- Remove the tips [A] of the clutch cable.
- Pull the lever and shaft assembly [B] out of the crankcase.

Clutch

Release Shaft Installation

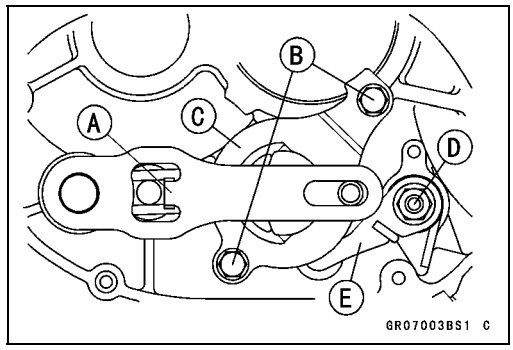
- Apply high temperature grease to the oil seal lips.
- Apply engine oil to the bearing in the hole of the crankcase.
- Insert the release shaft straight in to the hole of the crankcase.
- Install the clutch (see Clutch Installation).

○For KX125; install the magneto cover.

External Shift Mechanism

External Shift Mechanism Removal

- Remove:
  Shift Pedal
  Right Engine Cover
  Clutch Housing
- Pull out the external shift mechanism [A].
- Remove the bolts [B] and take off the shift ratchet assembly [C] with collar.
- Remove the nut [D], and take off the gear set lever [E].



External Shift Mechanism Installation

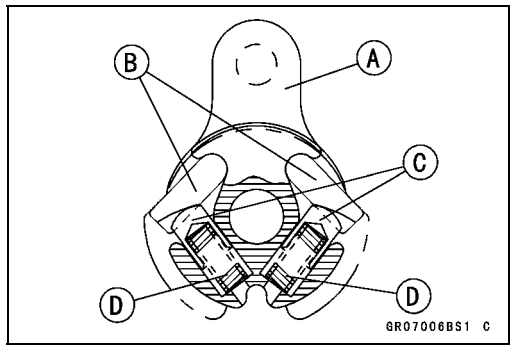
- Before installing the shift shaft, apply high temperature grease to the oil seal lips and shift shaft splines.
- Install the gear set lever.

○Do not forget to install the color.

- Tighten the gear set lever nut.

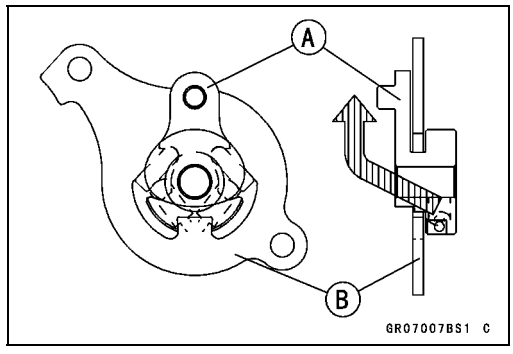
Torque - Gear Set Lever Nut: 8.8 N·m (0.9 kgf·m, 78 in·lb)

- Set up the shift ratchet assembly as shown in the figure.
  Ratchet [A]
  Pawls [B]
  Pins [C]
  Springs [D]



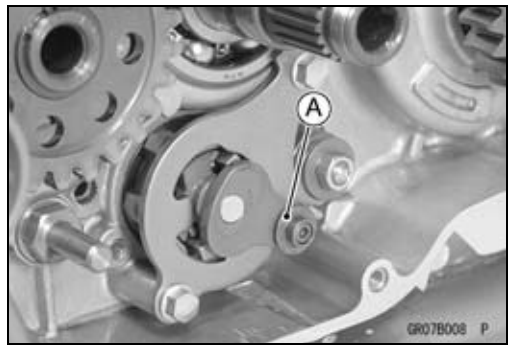
- Then install the ratchet assembly [A] to the ratchet plat [B] as shown in the figure.
- Install the ratchet assembly to the shift drum.
- Tighten:

Torque - Ratchet Plat Mounting Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)



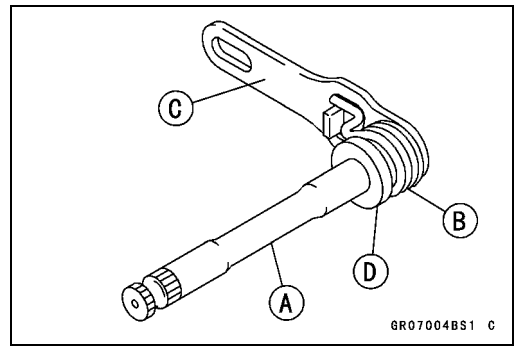
○Do not forget to install the collar [A].

- Instal the removal parts.



External Shift Mechanism

External Shift Mechanism Inspection



- Check the shift shaft [A] for bending or damage to the splines.

★If the shaft is bent, straighten or replace it. If the splines are damaged, replace the shift mechanism.

- Check the return spring [B] for cracks or distortion.

★If the spring is damaged in any way, replace it.

- Check the shift mechanism arm [C] for distortion.

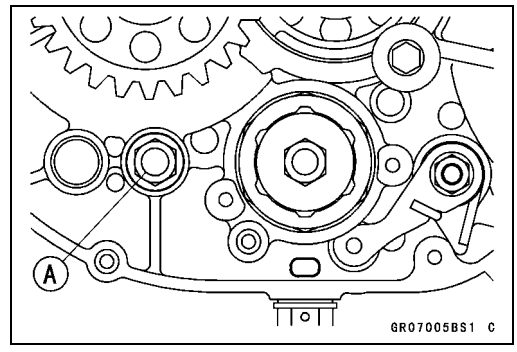
★If the shift mechanism arm is damaged in any way, replace the shift mechanism.

- Check the collar [D] for damage.

★If the collar is damaged in any way, replace it.

- Check the ratchet assembly for damage.

★If ratchet, pawls, pins or springs are damaged in any way, replace them.



- For KX250, Check that the return spring pin [A] is not loose.

★If it is loose, unscrew it, apply a non-permanent locking agent to the threads, and tighten it.

Torque - Return Spring Pin: 42 N·m (4.3 kgf·m, 31 ft·lb)

- Check the gear set lever and its spring for cracks or distortion.

★If the lever or spring is damaged in any way, replace them.

- Visually inspect the shift drum cam.

★If it is badly worn or if it shows any damage, replace it.

Primary Gear

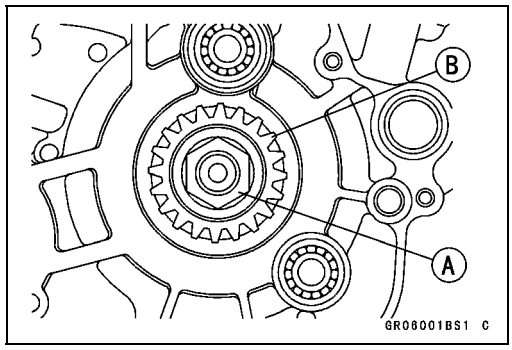
Primary Gear Removal

- Remove the right engine cover (see Right Engine Cover Removal)
- Remove the clutch (see Clutch Removal).
- For KX125, remove the primary gear nut [A], spring washer, woodruff key, primary gear [B], and O-ring.

NOTE

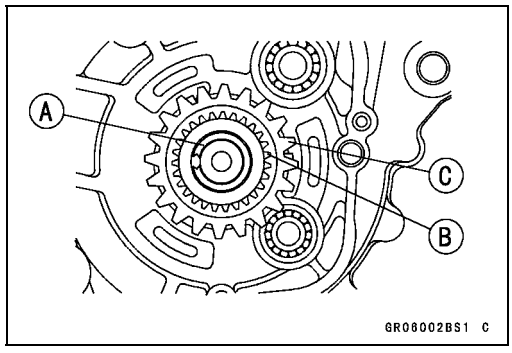
○*Use the flywheel & pulley holder to prevent the crankshaft from the rotating.*

Special Tool - Flywheel & Pulley Holder: 57001-1605



- For KX250, remove the circlip [A], and take off the water pump drive gear [B] and primary gear [C].

Special Toos - Outside Circlip Pliers: 57001-144

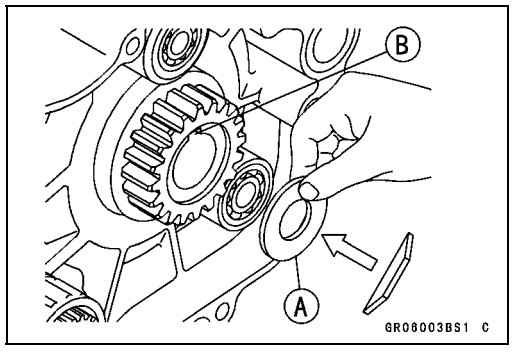


Primary Gear Installation

KX125

- Instal the O-ring.
- Fit the woodruff key [B] on the crankshaft groove.
- Install the spring washer so that concave side faces [A] inward.
- Tighten the primary gear nut.

Torque - Primary Gear Nut: 59 N·m (6.0 kgf·m, 43 ft·lb)



NOTE

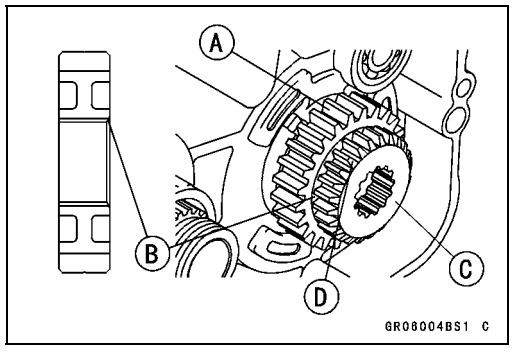
○*Use the flywheel & pulley holder to prevent the crankshaft from the rotating.*

Special Toos - Flywheel & Pulley Holder: 57001-1605

KX250

- Install the primary gear [A] so that chamfered side [B] faces outward.
- Install the water pump drive gear [C] so that the chamfered side [D] faces outward.
- Replace the old circlip with a new one.

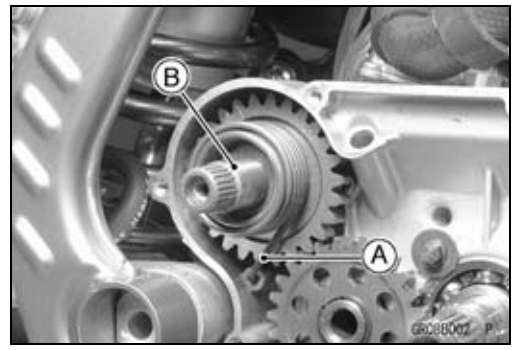
Special Toos - Outside Circlip Pliers: 57001-144



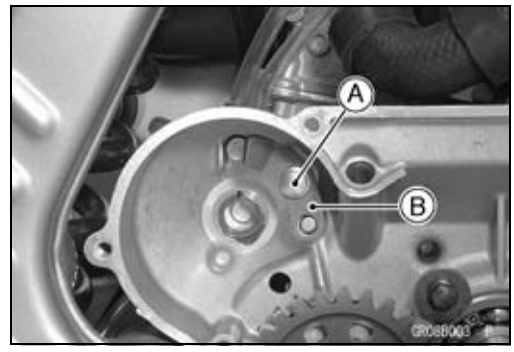
Kickstarter

Kickshaft Removal

- Remove:
  Right Engine Cover
  Clutch Housing
- Pull the end of the kick spring [A] out of the hole in the crankcase.
- Remove the kickstarter assembly [B].

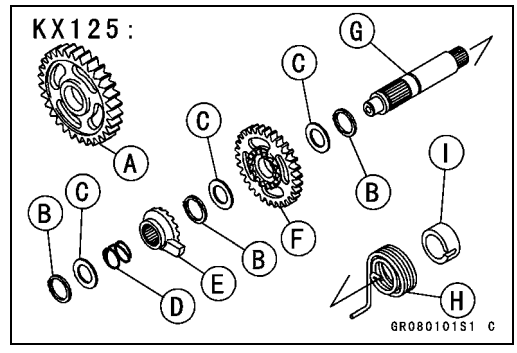


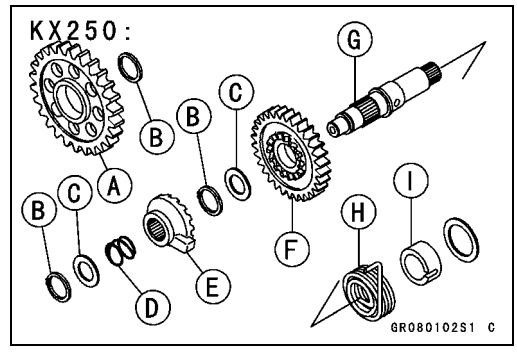
- Remove the bolts [A], take off the ratchet guide [B].



Kickstarter Assembly Disassembly/Assembly

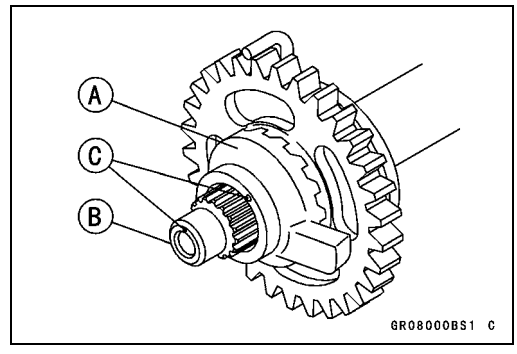
- The kickstarter assembly consists of the following parts.
- Check the kickstarter assembly parts for damage. Any damaged parts should be replaced with new ones.
  A. Idle Gear
  B. Circlip
  C. Washer
  D. Spring
  E. Ratchet Gear
  F. Kick Gear
  G. Kick Shaft
  H. Kick Spring
  I. Spring Guide





- Apply molybdenum disulfide grease to the inside of the kick gear and ratchet gear.
- When assembling the ratchet gear [A] onto the kick shaft [B], align the punch mark [C] on the ratchet gear with the punch mark [C] on the kick shaft.
- Replace the circlips that were removed with new ones.

Special Tool - Outside Circlip Pliers: 57001-144

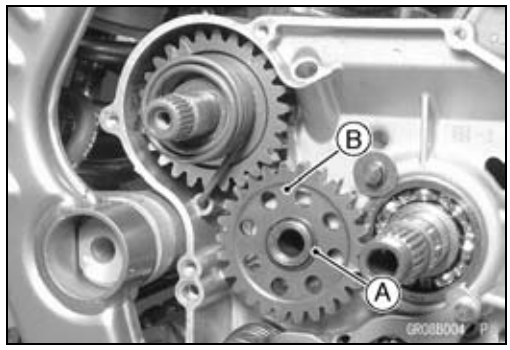


Kickstarter

Idle Gear Removal

- Remove:
  Right Engine Cover (see Right Engine Cover Removal)
  Clutch Housing (see Clutch Removal)
- For KX125, pull off the idle gear.
- For KX250, remove the circlip [A] and pull off the idle gear [B].

Special Tool - Outside Circlip Pliers: 57001-144



Idle Gear Installation

- Apply molybdenum disulfide grease to the inside of the idle gear.
- Replace the circlip with a new one.

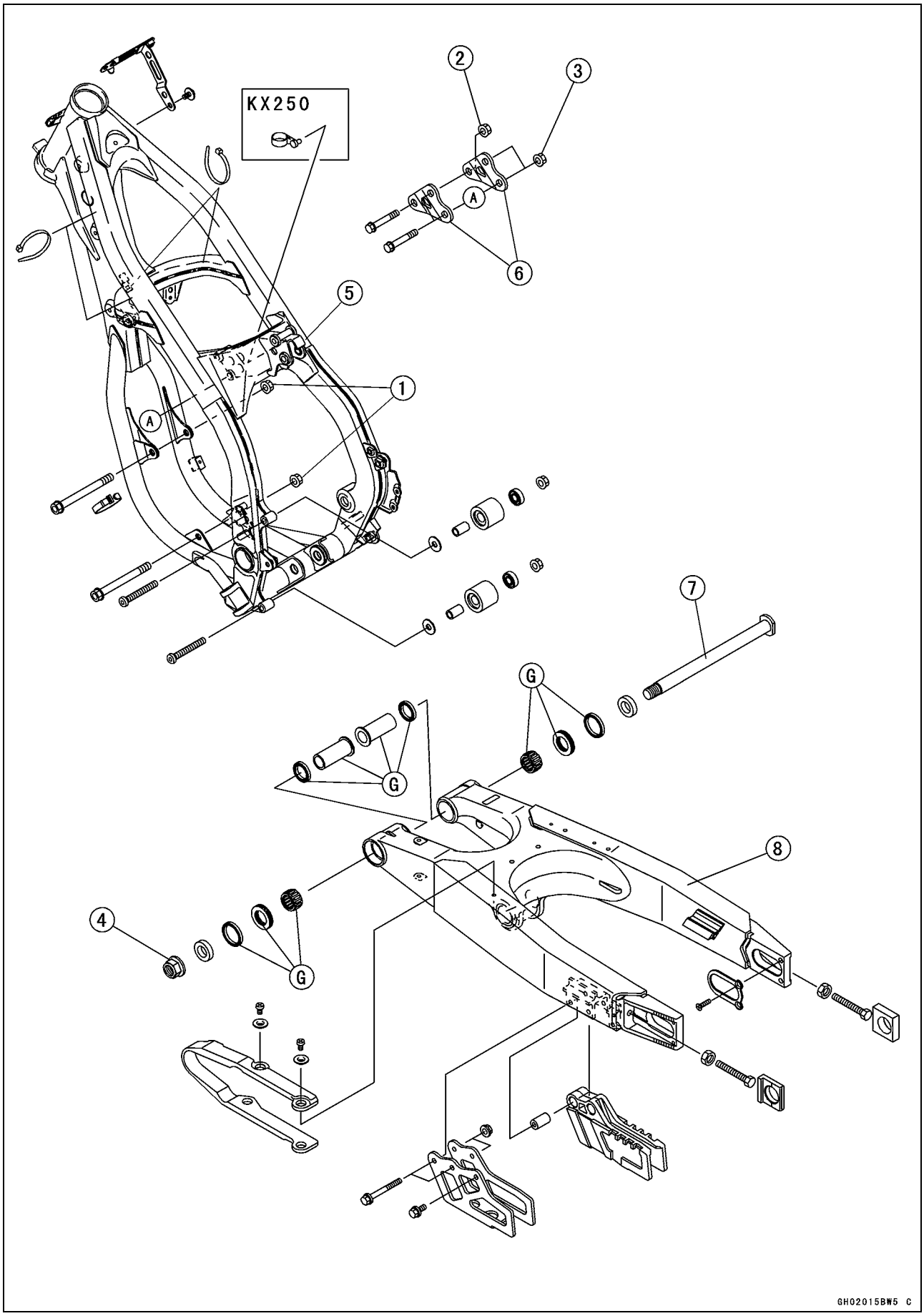
Special Tool - Outside Circlip Pliers: 57001-144

Engine Removal/Installation

Table of Contents

Exploded View 7-2
Special Tool 7-4
Engine Removal/Installation 7-5
Engine Removal 7-5
Engine Installation 7-6

Exploded View



Exploded View

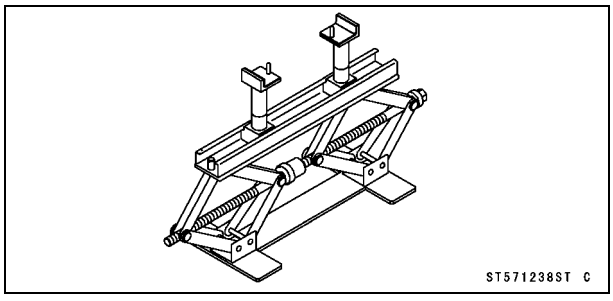
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Engine Mounting Nuts	44	4.5	33	
2	Engine Mounting Bracket Nut (Engine Side 10 mm)	44	4.5	33	
	KX125/250-M2~	49	5.0	36	
3	Engine Mounting Bracket Nuts (Frame Side 8 mm)	29	3.0	22	
4	Swing Arm Pivot Shaft Nut	98	10.0	72	

5. Frame
6. Engine Mounting Bracket
7. Pivot Shaft
8. Swingarm

G: Apply grease.

Special Tool

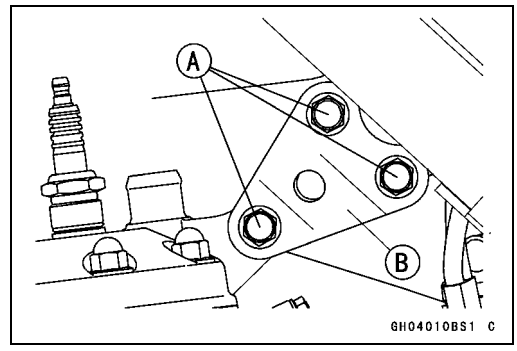
Jack:
57001-1238



Engine Removal/Installation

Engine Removal

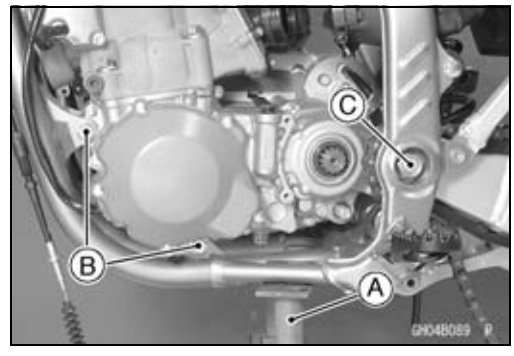
- Drain the transmission oil (see Engine Bottom End/Transmission chapter).
- Drain the coolant (see Cooling System chapter).
- Remove:
  Radiator Shrouds
  Side Covers
  Seat
  Fuel Tank
  Cooling Hoses
  Radiators
  Expansion Chamber
  Ignition Coil (KX250)
  Spark Plug Cap
  Carburetor (with Cables and Hoses)
  Clutch Cable Lower End
  Drive Chain
  Engine Sprocket
  Shift Pedal
  Brake Pedal
- Disconnect the magneto output lead, and free the leads from the clamp at the left side of the cylinder.
- Unbolt the mounting bolts [A] and remove the engine mounting brackets [B].



- Place a jack [A] under the frame to lift the motorcycle off the ground, and put blocks under the front and rear tires to steady the motorcycle.

⚠ WARNING

The swingarm pivot shaft also serves as the engine mounting bolt. Take precautions to insure the frame is well supported, and that the motorcycle will not fall over when the pivot shaft is removed.



Special Tool - Jack: 57001-1238

- Remove the engine mounting bolts [B].
- Pull out the swing arm pivot shaft [C].
- Lift the engine out to the right.

Engine Removal/Installation

Engine Installation

- Tighten the following nuts.

Torque - Engine Mounting Nuts:
44 N·m (4.5 kgf·m, 33 ft·lb)
49 N·m (5.0 kgf·m, 36 ft·lb) (KX125/250-M2~)
Engine Mounting Bracket Nuts:
10 mm: 44 N·m (4.5 kgf·m, 33 ft·lb)
10 mm: 49 N·m (5.0 kgf·m, 36 ft·lb) (KX125/250 -M2~)
8 mm: 29 N·m (3.0 kgf·m, 22 ft·lb)
Pivot Shaft Nut: 98 N·m (10.0 kgf·m, 72 ft·lb)

- To route the leads, cables and hoses, refer to the Appendix chapter.
- To install parts removed, refer to the appropriate chapters.
- Fill the cooling system with coolant (see Cooling System chapter).
- Fill the engine with transmission oil (see Engine Bottom End/Transmission chapter).
- Adjust:
  Throttle Cable
  Clutch Cable
  Drive Chain
  Rear Brake

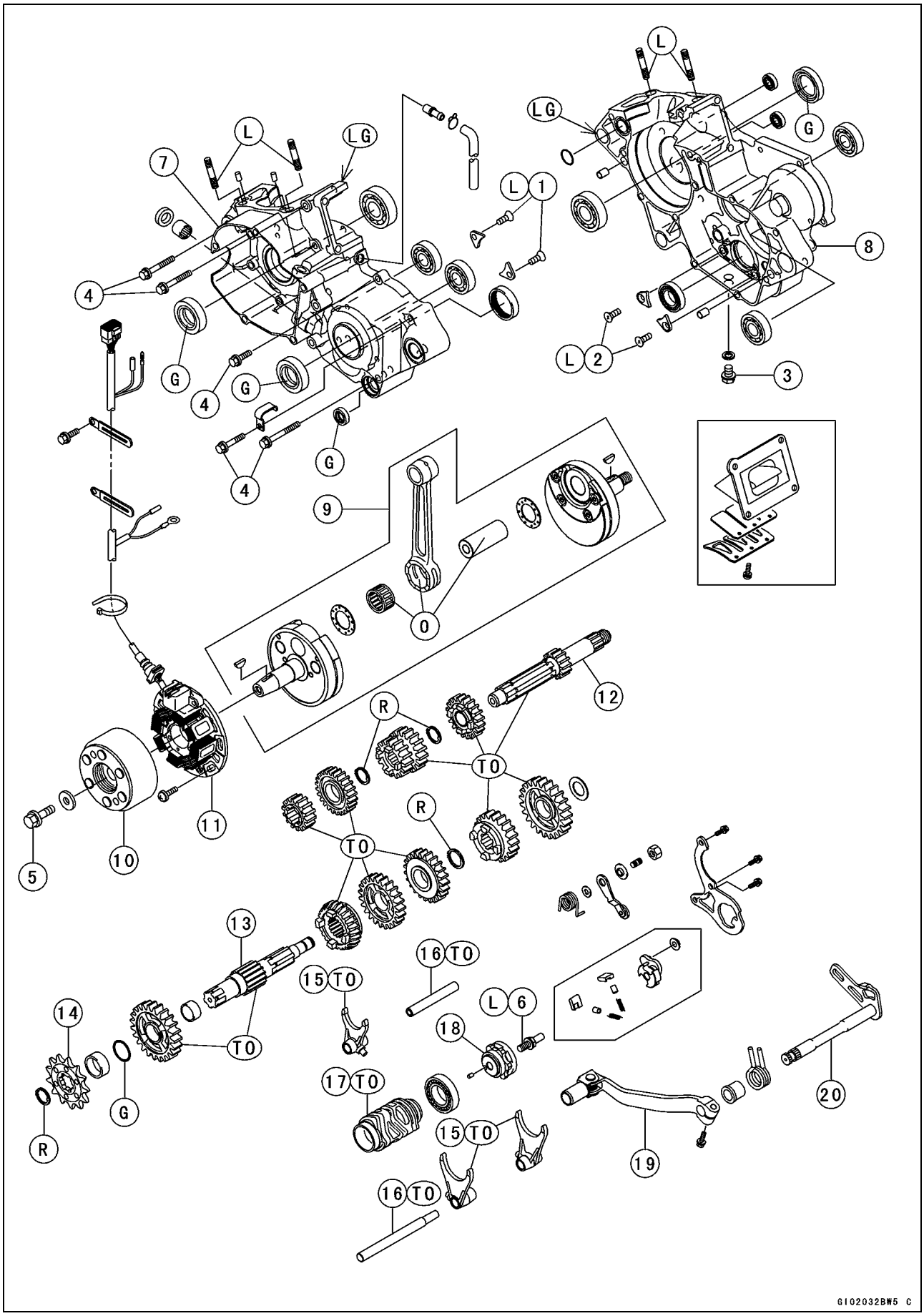
Engine Bottom End/Transmission

Table of Contents

Exploded View 8-2
Specifications 8-6
Special Tools 8-7
Transmission Oil 8-8
  Oil Level Inspection 8-8
  Oil Change 8-8
Crankcase 8-9
  Crankcase Splitting 8-9
  Crankcase Disassembly 8-10
  Crankcase Assembly 8-10
Crankshaft, Connecting Rod 8-13
  Crankshaft Removal 8-13
  Crankshaft Installation 8-13
  Crankshaft Disassembly 8-13
  Crankshaft Assembly 8-13
  Connecting Rod Big End Radial Clearance 8-14
  Connecting Rod Big End Seizure 8-14
  Connecting Rod Big End Side Clearance 8-14
  Crankshaft Runout 8-14
  Crankshaft Alignment 8-15
Transmission 8-16
  Shaft Removal 8-16
  Shaft Installation 8-16
  Shaft Disassembly 8-16
  Shaft Assembly 8-16
  Shift Drum and Fork Installation 8-17
  Shift Fork Bending 8-18
  Shift Fork/Gear Groove Wear 8-19
  Shift Fork Guide Pin/Shift Drum Groove Wear 8-19
  Gear Damage 8-19
  Gear Dog/Gear Dog Hole Damage 8-20
  Ball Bearing Wear 8-20

Exploded View

KX125:



Exploded View

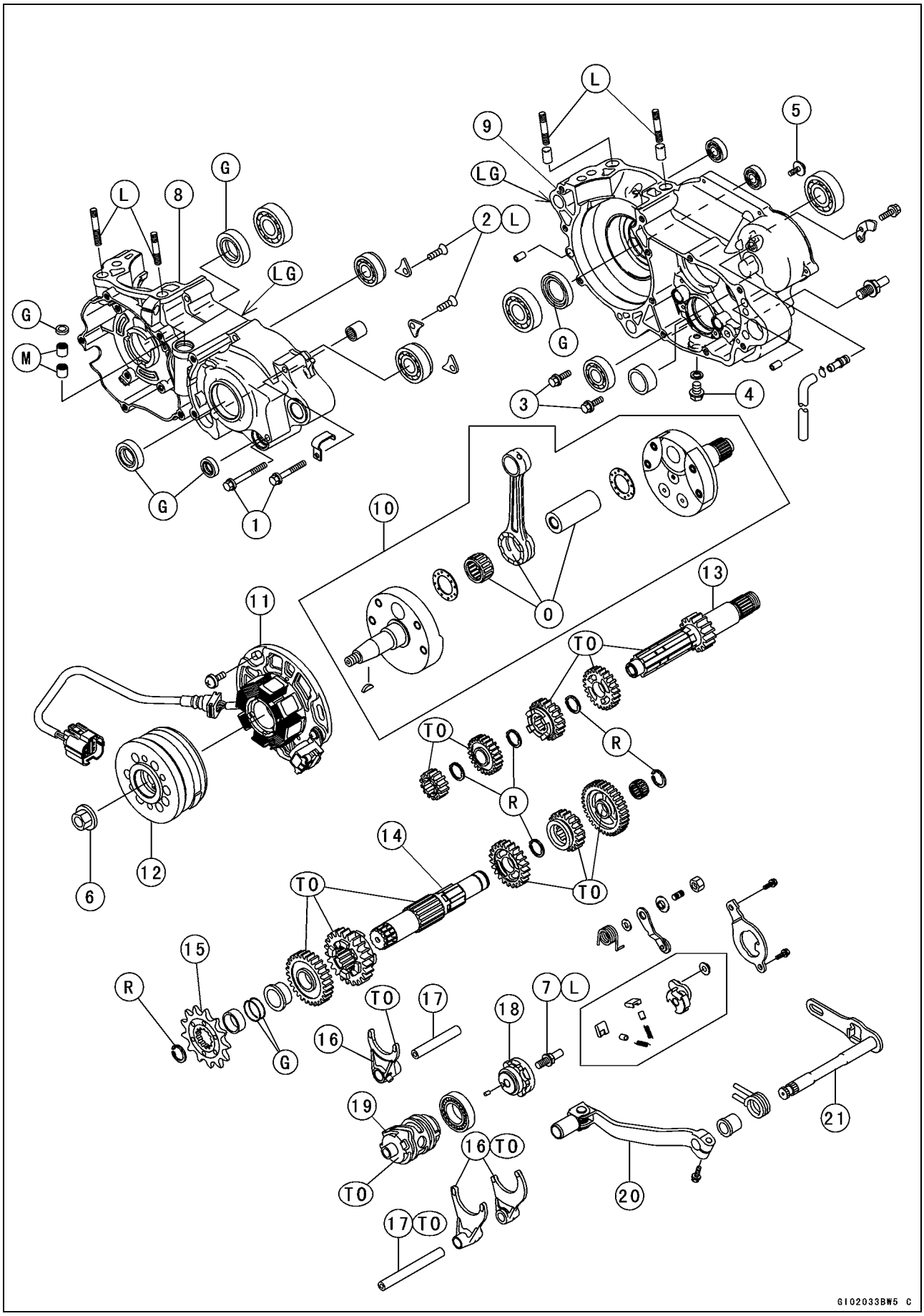
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Output Shaft Bearing Retaining Screws	5.4	0.55	48 in·lb	L
2	Shift Drum Bearing Retaining Screws	6.4	0.65	56 in·lb	L
	Bolts (KX125-M2~)	8.8	0.9	78 in·lb	
3	Transmission Oil Drain Plug	20	2.0	14.5	
4	Crankcase Bolts	8.8	0.9	78 in·lb	
5	Flywheel Bolt	22	2.2	16	
6	Shift Drum Operating Cam Bolt	24	2.4	17	L

7. Left Crankcase
8. Right Crankcase
9. Crankshaft Assembly
10. Flywheel Magneto
11. Stator
12. Drive Shaft
13. Output Shaft
14. Engine Sprocket
15. Shift Fork
16. Shift Rod
17. Shift Drum
18. Shift Drum Operating Cam
19. Shift Pedal
20. Shift Shaft

M: Apply molybdenum disulfide grease.
O: Apply 2-stroke engine oil.
TO: Apply transmission oil to the transmission gears and shift forks, etc.
G: Apply high temperature grease.
L: Apply a non-permanent locking agent.
LG: Apply liquid gasket to the left and right case mating surface.
R: Replacement parts

Exploded View

KX250:



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Crankcase Bolts	8.8	0.9	78 in·lb	
2	Output Shaft Bearing Retaining Screws	5.4	0.55	48 in·lb	L
3	Shift Drum Bearing Retaining Bolts	8.8	0.9	78 in·lb	
4	Transmission Oil Drain Plug	20	2.0	14.5	
5	Drive Shaft Bearing Retaining Bolts	8.8	0.9	78 in·lb	
6	Flywheel Nut	78	8.0	58	
7	Shift Drum Operating Cam Bolt	24	2.4	17	L

8. Left Crankcase
9. Right Crankcase
10. Crankshaft Assembly
11. Stator
12. Flywheel Magneto
13. Drive Shaft
14. Output Shaft
15. Engine Sprocket
16. Shift Fork
17. Shift Rod
18. Shift Drum Operating Cam
19. Shift Drum
20. Shift Pedal
21. Shift Shaft

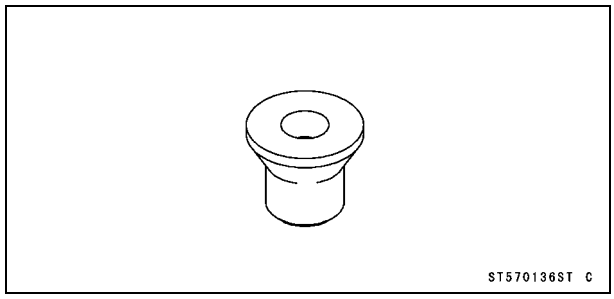
M: Apply molybdenum disulfide grease.
O: Apply 2-stroke engine oil.
TO: Apply transmission oil to the transmission gears and shift forks, etc.
G: Apply high temperature grease.
L: Apply a non-permanent locking agent.
LG: Apply liquid gasket to the left and right case mating surface.
R: Replacement parts.

Specifications

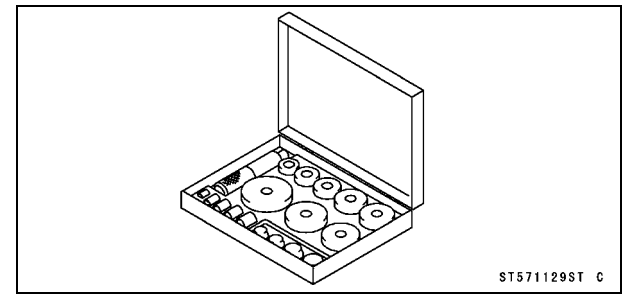
Item	Standard	Service Limit
	KX125/250-M1	
Transmission Oil		
Type	API SE, SF or SG API SH or SJ with JASO MA	– – –
Viscosity	SAE 10W-40	– – –
Capacity:		
KX125	0.7 L (0.74 US qt)	– – –
KX250	0.85 L (0.90 US qt)	– – –
Crankshaft, Connecting Rod		
Connecting Rod Bend	Not more than 0.03 mm (0.0012 in.)/100 mm (3.937 in.)	0.2 mm (0.008 in.)/100 mm (3.937 in.)
Connecting Rod Big End Radial Clearance:		
KX125	0.036 ~ 0.047 mm (0.0014 ~ 0.0019 in.)	0.10 mm (0.004 in.)
KX250	0.037 ~ 0.049 mm (0.0015 ~ 0.0019 in.)	0.10 mm (0.004 in.)
Connecting Rod Big End Side Clearance:		
KX125	0.40 ~ 0.50 mm (0.0157 ~ 0.0197 in.)	0.70 mm (0.028 in.)
KX250	0.45 ~ 0.55 mm (0.0177 ~ 0.0217 in.)	0.70 mm (0.028 in.)
Crankshaft Runout	Not more than 0.03 mm (0.0012 in.)	0.05 mm (0.002 in.)
Transmission		
Gear Backlash:	0.02 ~ 0.20 mm (0.0008 ~ 0.0078 in.)	0.30 mm (0.012 in.)
Shift Fork Ear Thickness:		
KX125	4.90 ~ 5.00 mm (0.1768 ~ 0.1969 in.)	4.80 mm (0.189 in.)
KX250	4.40 ~ 4.50 mm (0.1732 ~ 0.1772 in.)	4.30 mm (0.169 in.)
Gear Shift Fork Groove Width:		
KX125	5.05 ~ 5.15 mm (0.1988 ~ 0.2028 in.)	5.25 mm (0.207 in.)
KX250	4.55 ~ 4.65 mm (0.1791 ~ 0.1830 in.)	4.75 mm (0.187 in.)
Shift Fork Guide Pin Diameter	5.90 ~ 6.00 mm (0.2323 ~ 0.2362 in.)	5.80 mm (0.228 in.)
Shift Drum Groove Width	6.05 ~ 6.20 mm (0.2382 ~ 0.2440 in.)	6.25 mm (0.246 in.)

Special Tools

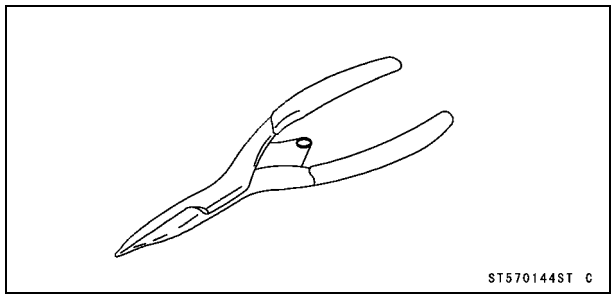
Bearing Puller Adapter:
57001-136



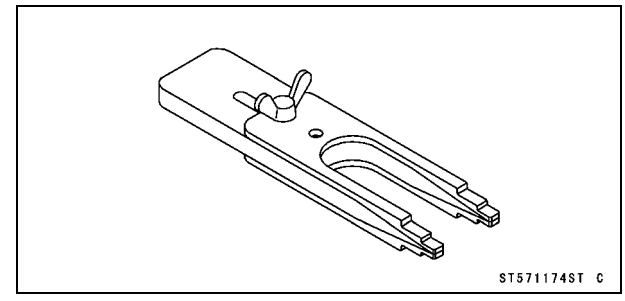
Bearing Driver Set:
57001-1129



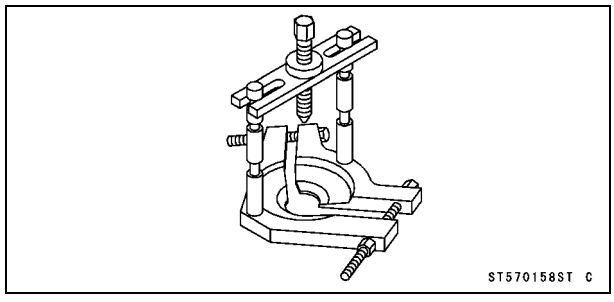
Outside Circlip Pliers:
57001-144



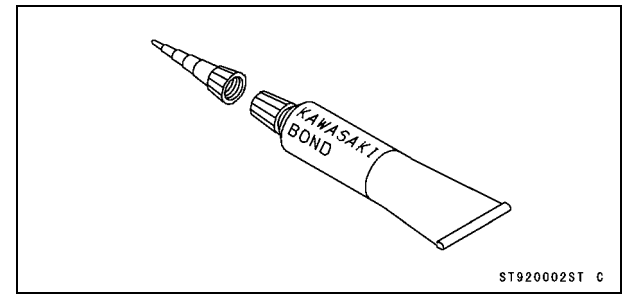
Crankshaft Jig:
57001-1174



Bearing Puller:
57001-158



Kawasaki Bond (Liquid Gasket - Silver):
92104-002



Crankcase Splitting Tool Assembly:
57001-1098

Transmission Oil

In order for the transmission and clutch to function properly, always maintain the transmission oil at the proper level and change the oil periodically.

⚠ WARNING

Motorcycle operation with insufficient, deteriorated, or contaminated transmission oil will accelerated wear and may result in transmission seizure, and injury.

Oil Level Inspection

- Refer to the Transmission Oil Level Inspection in the Periodic Maintenance chapter.

Oil Change

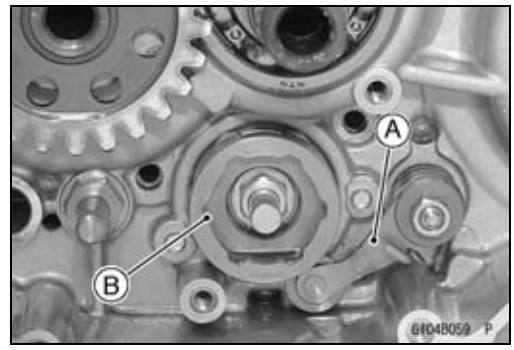
- Refer to the Transmission Oil Change in the Periodic Maintenance chapter.

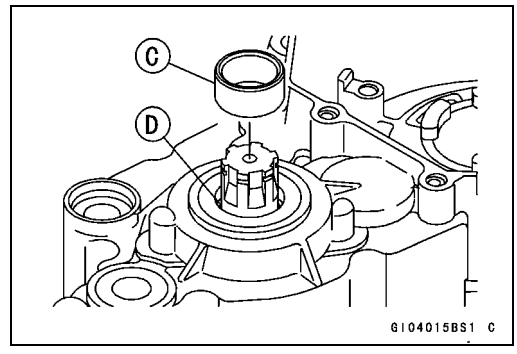
Crankcase

Crankcase Splitting

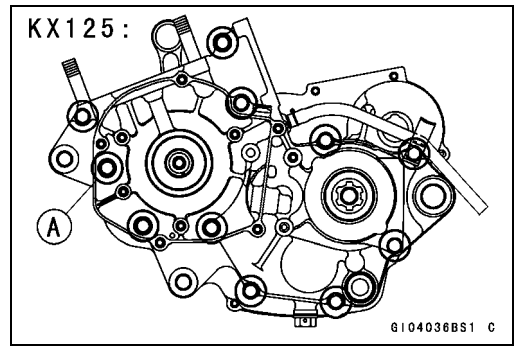
- Remove the engine (see the Engine Removal/Installation chapter).
- Set the engine on a clean surface while parts are being removed.
- Remove:

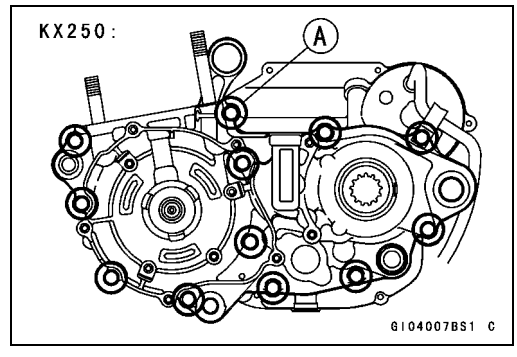
  Magneto Cover
  Cylinder Head (see Engine Top End chapter)
  Cylinder (see Engine Top End chapter)
  Piston (see Engine Top End chapter)
  Right Engine Cover (see Engine Right Side chapter)
  Clutch (see Engine Right Side chapter)
  Primary Gear (see Engine Right Side chapter)
  Kickstarter Assembly (see Engine Right Side chapter)
  Kickstarter Idle Gear (see Engine Right Side chapter)
  External Shift Mechanism (see Engine Right Side chapter)
  Shift Ratchet Assembly (see Engine Right Side chapter)
  Gear Set Lever [A]
  Shift Drum Operating Cam [B]
  Output Shaft Sleeve [C] and O-ring [D] (KX250, O-rings)
  Flywheel Magneto and Stator (see Electrical System chapter)
  Reed Valve (KX125) (see Fuel System chapter)





- Remove the crankcase bolts [A].

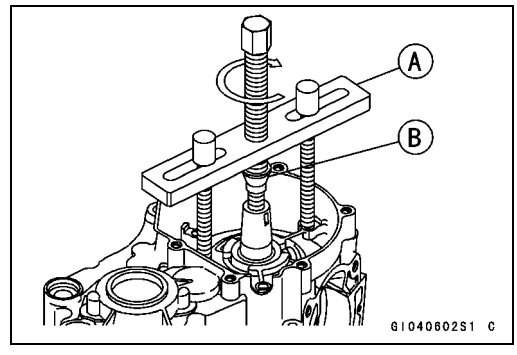




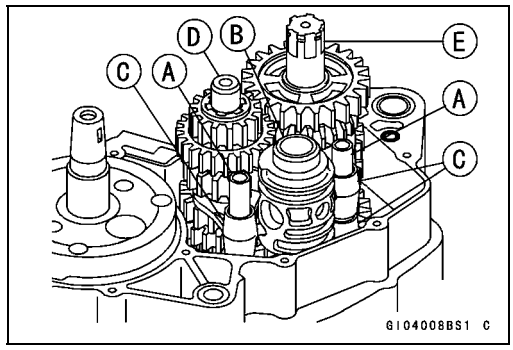
- Install the crankcase splitting tool [A] and bearing puller adapter [B] into the left side of the crankcase. Be certain to screw the tool in all the way.

Special Tools - Crankcase Splitting Tool Assembly: 57001-1098
Bearing Puller Adapter: 57001-136

- Tighten the bolt on the crankcase splitting tool to split the crankcase halves.
- Once the crankcase is split, remove the crankcase splitting tool, and lift off the left crankcase half.



Crankcase



- Pull out the shift rods [A].
- Disengage the shift fork guide pins from the shift drum grooves.
- Take off the shift drum [B]
- Remove the shift forks [C] from the transmission gears.
- Take out the drive shaft [D] and output shaft [E] together with their gear meshed.
- Remove the crankshaft from the right crankcase half using a press.

Crankcase Disassembly

CAUTION
Do not remove the bearings and the oil seals unless it is necessary. **Removal may damage them.**

Crankcase Assembly

- Before fitting the left case on the right case, note the following:

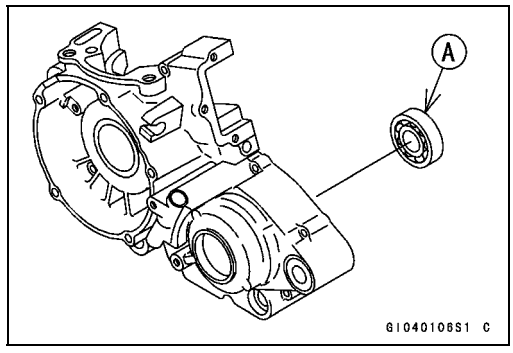
○Chip off the old gasket from the mating surfaces of the crankcase halves, and clean off the crankcase with a high -flash point solvent. After cleaning, apply transmission oil to the transmission gears, shift drum, shift forks and so on.

○Be sure to replace any oil seal removed with a new one. Press in the new oil seal using a press and suitable tools so that the seal surface is flush with the surface of the crankcase.

○Apply high temperature grease to the oil seal lips.

○Press in the ball bearings using the bearing driver set until the bearing is bottomed.

Special Tool - Bearing Driver Set: 57001-1129



○Install the bearing for the output shaft into the left crankcase half so that stepped side faces [A] inside.

CAUTION
Install the bearings for the crankshaft in the right and left crankcase so that their sealed sides face toward the oil seal side.

○Tighten the output and drive shaft bearing retaining bolts/screws securely.

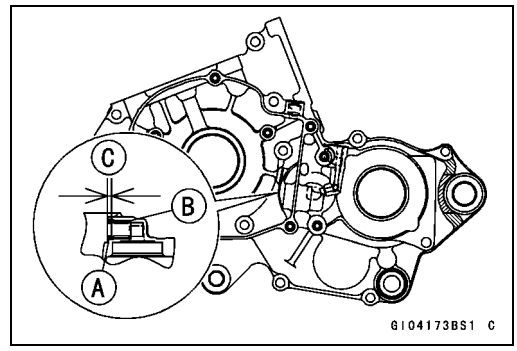
Torque - Bearing Retaining Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)
Bearing Retaining Screws: 5.4 N·m (0.55 kgf·m, 48 in·lb)

Crankcase

○For KX125M; install the release shaft needle bearing as shown.
[A] Oil Seal
[B] Needle Bearing
[C] Needle Bearing Position

KX125-M1 ~ M2: 3.5 ±0.2 mm (0.138 ±0.008 in.)

KX125-M3 ~: 3.3 ±0.2 mm (0.130 ±0.008 in.)

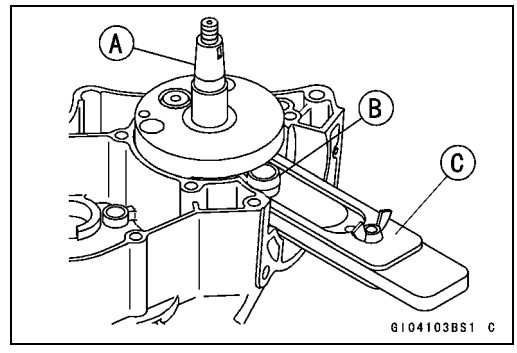


○If the crankshaft bearings stay on the crankshaft when splitting the crankcase, remove the bearings from the crankshaft and reinstall them in the crankcase, and then assemble the crankcase (see Crankshaft Removal and Installation).

● Turn the crankshaft [A] to BDC, and install the crankshaft jig [C] between the flywheels opposite the connecting rod [B] big end to protect flywheel alignment as shown.

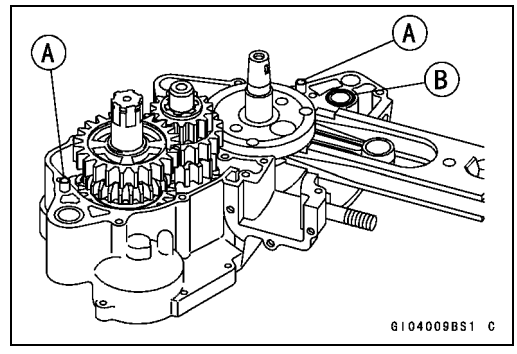
○If the crankshaft has been removed from the crankcase, install the jig between the crankshaft flywheels before pressing the crankshaft into the right crankcase half.

Special Tool - Crankshaft Jig: 57001-1174



● Install the transmission shaft as a set (see this chapter).
● Install the shift fork, shift drum and shift rod.

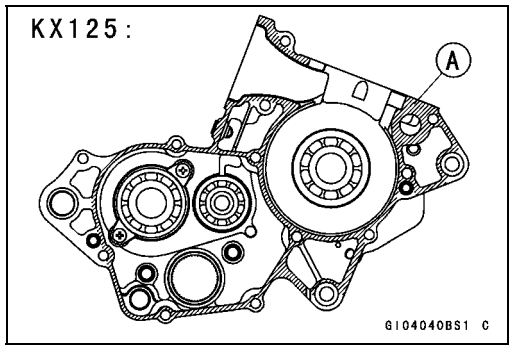
● Check to see that the crankcase knock pins [A] and O-ring [B] (KX125) are in place on the right crankcase half. If any of them has been removed, replace it with a new one.

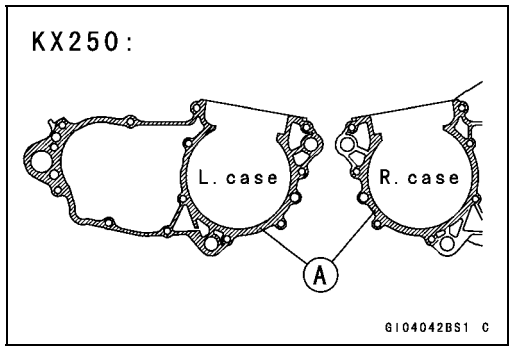


Crankcase

● Apply liquid gasket to the mating surface [A] of the crankcase half.

Sealant - Kawasaki Bond (Liquid Gasket - Silver): 92104 -002

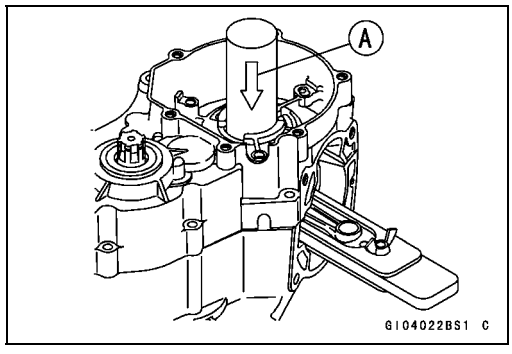




● Using a suitable tool on the left crankcase to press [A] around the hole for the crankshaft, fit the crankcase halves together with a press on the tool.

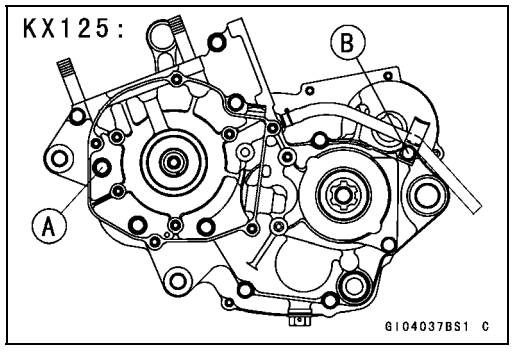
NOTE

○*Constantly check the alignment of the two crankcase halves, and the position of the transmission shafts, and shift drum. The front and rear of the crankcase must be pushed together evenly.*



● Remove the crankshaft jig from the flywheels.
● Tighten the crankcase bolts starting with the ones around the crankshaft, and then the farther ones.
○At this time, tighten the crankcase bolt [A] and clamp [B] for the breather hoses together.

Torque - Crankcase Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)



● Check to see that the crankshaft, drive shaft, and output shaft all turn freely (in the neutral position).
★If the crankshaft will not turn, probably the crankshaft is not centered; tap the appropriate end of the crankshaft with a mallet to reposition it.
● Spinning the output shaft, shift the transmission through all the gears to make certain there is no binding and that all the gears shift properly.
● Install the parts removed in the reverse order of removal, and refer to the appropriate chapters.
○Replace the O-ring on the output shaft with a new one.

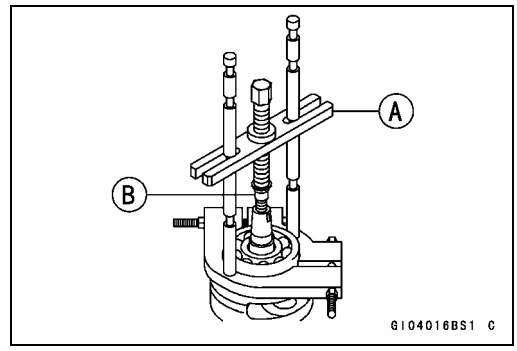
Crankshaft, Connecting Rod

Crankshaft Removal

- Split the crankcase (see Crankcase Splitting).
- Remove the transmission shafts (see Transmission Shaft Removal).
- Using a press, remove the crankshaft from the right crankcase.

○If the bearings stay on the crankshaft when splitting the crankcase or removing the crankshaft from the right crankcase, remove the bearings from the crankshaft with a bearing puller [A] and adapter [B].

Special Tools - Bearing Puller: 57001-158
Bearing Puller Adapter: 57001-136



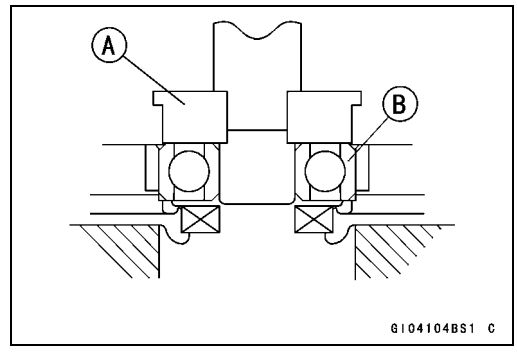
Crankshaft Installation

- When installing the crankshaft bearings [B], apply high temperature grease to the outer sides of the bearings, and then press them into the crankcase using the bearing driver [A] until the bearing bottoms against the step.

○Position the crankcase half so that the main bearing housing is seated on a suitable press fixture.

○Install the crankshaft bearing so that the mark side faces out.

Special Tool - Bearing Driver Set: 57001-1129

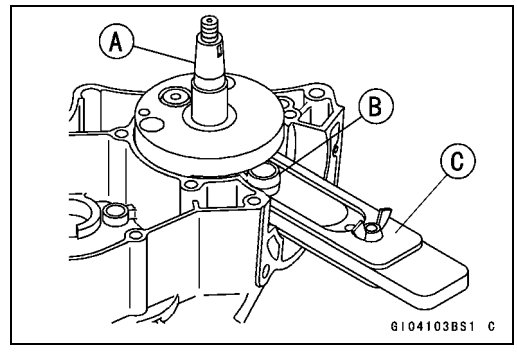


- Insert the crankshaft jig [C] between the crankshaft flywheels opposite the connecting rod [B] big end to protect flywheel alignment as shown, and press the crankshaft [A] into the right crankcase.

○When pressing, position the jig in the crankcase opening so the jig does not hit the crankcase.

Special Tool - Crankshaft Jig: 57001-1174

- Apply 2-stroke oil to the connecting rod big end bearing.



Crankshaft Disassembly

Since assembly of the crankshaft demands exacting tolerances, the disassembly and reassembly of the crankshaft can only be done by a shop having the necessary tools and equipment.

- If it should be necessary to disassemble the crankshaft, use a press to remove the crankpin.

Crankshaft Assembly

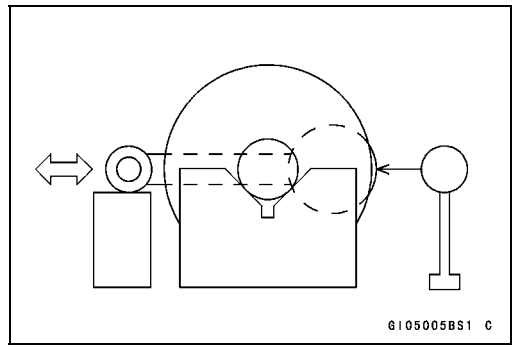
Since the assembly of the crankshaft demands exacting tolerances, the disassembly and reassembly of the crankshaft can only be done by a shop having the necessary tools and equipment.

- Reassemble the crankshaft according to the standard tolerances in Specifications.

○Connecting rod bend, twist
○Connecting rod big end radial clearance.
○Cold-fitting tolerance between crankpin and flywheels.
○Side clearance between the connecting rod big end and one of flywheels.
○Crankshaft runout.

Crankshaft, Connecting Rod

Connecting Rod Big End Radial Clearance



- Set the crankshaft in a flywheel alignment jig or on V blocks, and place a dial gauge against the connecting rod big end.
- Push the connecting rod first towards the gauge and then in the opposite direction. The difference between the two gauge readings is the radial clearance.

Connecting Rod Big End Radial Clearance
Standard:
KX125: 0.036 ~ 0.047 mm (0.0014 ~ 0.0019 in.)
KX250: 0.037 ~ 0.049 mm (0.0015 ~ 0.0019 in.)
Service Limit:
KX125: 0.10 mm (0.004 in.)
KX250: 0.10 mm (0.004 in.)

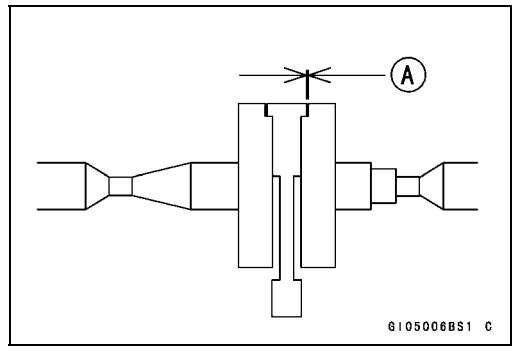
★If the radial clearance exceeds the service limit, the crankshaft should be either replaced or disassembled and the crankpin, needle bearing, and connecting rod big end examined for wear.

Connecting Rod Big End Seizure

★In case of serious seizure with damaged flywheels, the crankshaft must be replaced.

★In case of less serious damage, disassemble the crankshaft and replace the crankpin, needle bearing, side washers, and connecting rod.

Connecting Rod Big End Side Clearance

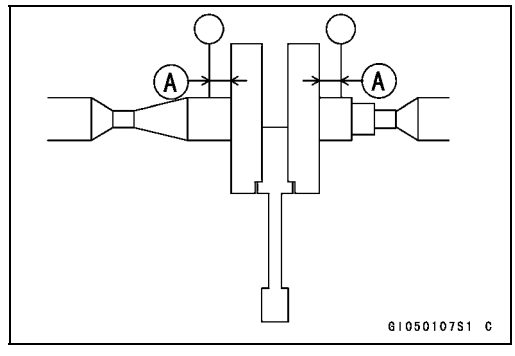


- Measure the side clearance [A] of the connecting rod with a thickness gauge.

Connecting Rod Big End Side Clearance
Standard:
KX125: 0.40 ~ 0.50 mm (0.0157 ~ 0.0197 in.)
KX250: 0.45 ~ 0.55 mm (0.0177 ~ 0.0217 in.)
Service Limit: 0.70 mm (0.028 in.)

★If the clearance exceeds the service limit, replace the crankshaft.

Crankshaft Runout



- Set the crankshaft in a flywheel alignment jig or on V blocks, and place a dial gauge against the points indicated.
- Turn the crankshaft slowly. The maximum difference in gauge readings is the crankshaft runout.

(A): KX125 - 8.0 mm (0.315 in.)
KX250 - 8.5 mm (0.335 in.)

Crankshaft Runout
Standard: Not more than 0.03 mm (0.0012 in.)
Service Limit: 0.05 mm (0.002 in.)

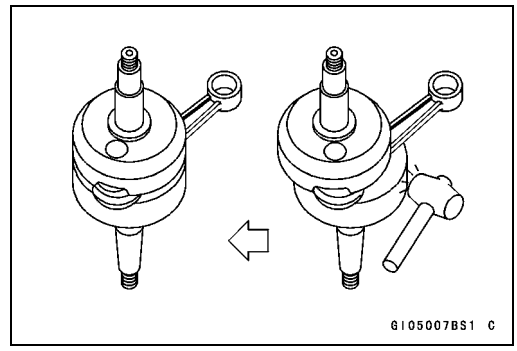
★If the runout at either point exceeds the service limit, align the flywheels so that the runout falls within the service limit.

Crankshaft, Connecting Rod

Crankshaft Alignment

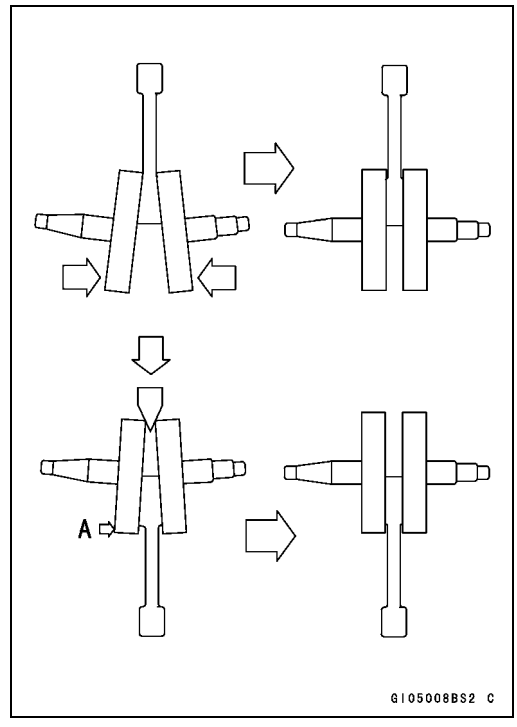
- In the case of horizontal misalignment, which is the most common, strike the projecting rim of the flywheel with a plastic, soft lead, or brass hammer as indicated in the figure.
- Recheck the runout with a dial gauge, repeating the process until the runout falls within the service limit.

○Vertical misalignment is corrected either by driving a wedge in between the flywheels or by squeezing the flywheel rims in a vise, depending on the nature of the misalignment. In cases of both horizontal and vertical misalignment, correct the horizontal misalignment first.



CAUTION
Don’t hammer the flywheel at point "A".

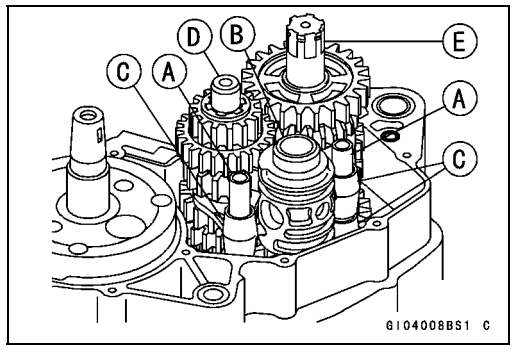
★If flywheel misalignment cannot be corrected by the above method, replace the crankpin or the crankshaft itself.



Transmission

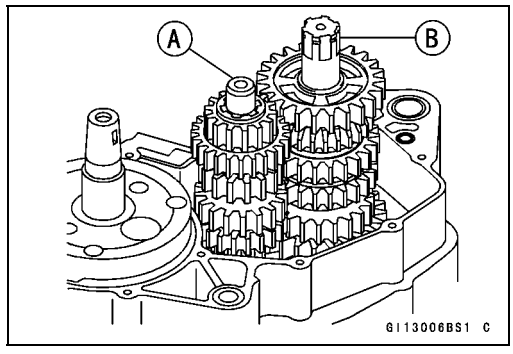
Shaft Removal

- Split the crankcase (see Crankcase Splitting).
- Pull off the shift rods [A], and disengage the shift fork guide pins from the shift drum grooves.
- Remove the shift drum [B]
- Remove the shift forks [C] from the transmission gears.
- Take out the drive shaft [D] and output shaft [E] together, with their gears meshed.



Shaft Installation

- Hold the drive shaft [A] and output shaft [B] together, with their gears meshed, and fit them into the right crankcase half.
- To install the shift forks and shift drum (see Shift Drum and Fork Installation).



Shaft Disassembly

- Remove the transmission shafts (see Shaft Removal).
- Using circlip pliers to remove the circlips, disassemble the transmission shaft.

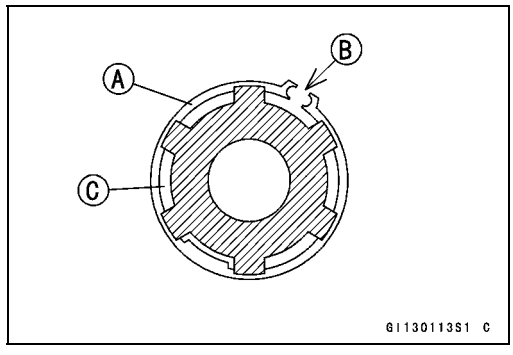
Special Tool - Outside Circlip Pliers: 57001-144

Shaft Assembly

- Apply transmission oil liberally to the transmission shaft, gears and bearings.
- Replace any circlips that were removed with new ones.

○Always install circlips [A] so that the opening [B] is aligned with a spline groove [C].

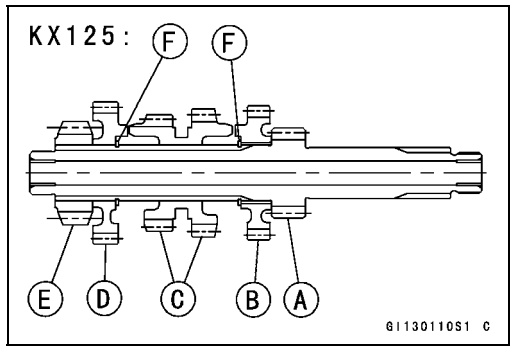
Special Tool - Outside Circlip Pliers: 57001-144



- The drive shaft gears can be identified by size; the smallest diameter gear is 1st gear, and the largest is 5th (KX250) or 6th (KX125). Be sure that all parts are put back in the correct sequence, and facing the proper direction, and that all circlips and the washers are properly in place.

KX125:

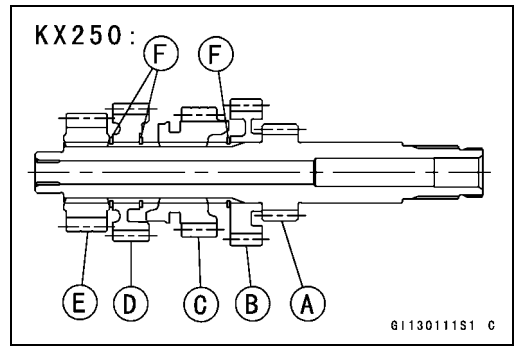
A. 1st gear (13T; part of drive shaft)
B. 5th gear (24T; plain side faces right)
C. 3rd/4th gear (17T/17T; larger gear faces right)
D. 6th gear (25T; plain side faces left)
E. 2nd gear (14T; stepped side faces left)
F. Circlip



Transmission

KX250:

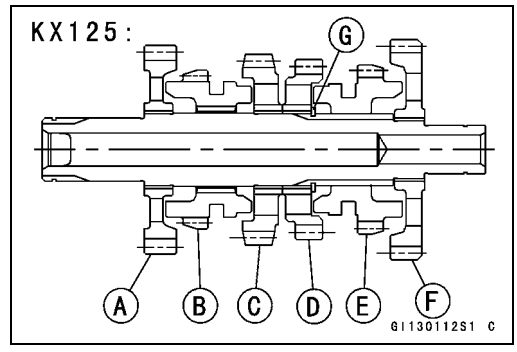
A. 1st gear (15T; part of drive shaft)
B. 5th gear (23T; dog recesses face left)
C. 3rd gear (17T; fork groove goes to the left side of the gear teeth)
D. 4th gear (21T; dog recesses face right)
E. 2nd gear (16T; chamfered side faces right)
F. Circlip



- The output shaft gears can be identified by size; the largest diameter gear is 1st gear, and the smallest is 5th (KX250) or 6th (KX125). Be sure that all parts are put back in the correct sequence and facing the proper direction, and that all circlips are properly in place.

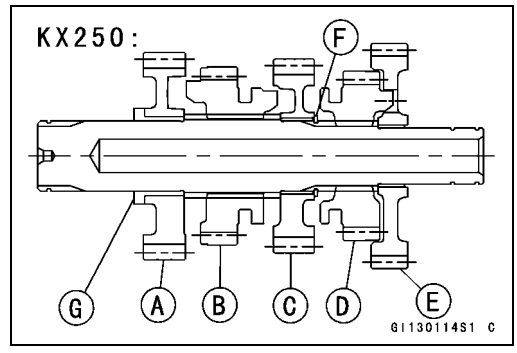
KX125:

A. 2nd gear (26T; dog recesses face right)
B. 6th gear (25T; fork groove goes to the right side of the gear teeth)
C. 3rd gear (26T; dog recesses face left)
D. 4th gear (22T; dog recesses face right)
E. 5th gear (27T; fork groove goes to the left side of the gear teeth)
F. 1st gear (31T; plain side faces right)
G. Circlip



KX250:

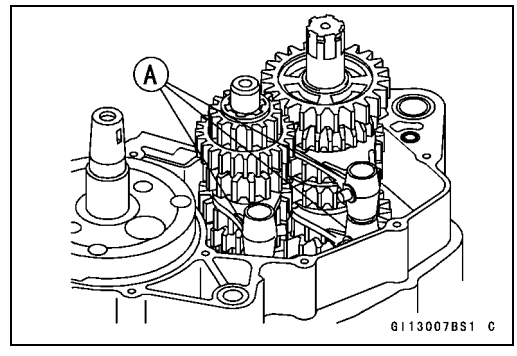
A. 2nd gear (23T; dog recesses face right)
B. 4th gear (21T; fork groove goes to the right side of the gear teeth)
C. 3rd gear (20T; dog recesses face left)
D. 5th gear (20T; fork groove goes to the left side of the gear teeth)
E. 1st gear (27T; dog recesses face left)
F. Circlip
G. Collar



- Check that each gear spins or slides freely on the transmission shaft without binding after assembly.

Shift Drum and Fork Installation

- Apply a little transmission oil to the shift fork [A] ears, and fit the shift forks into the gear grooves.

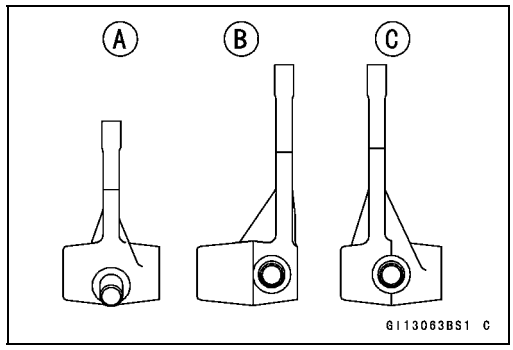


Transmission

Shift Fork Identification

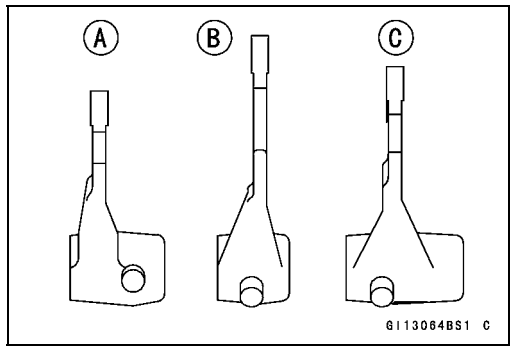
KX125:

Drive shaft 3rd gear and 4th gear shift fork [A]	ears are shorter than those of the other two shift forks
Output shaft 5th gear shift fork [B]	guide pin goes to left side of the ears
Output shaft 6th gear shift fork [C]	guide pin goes to right side of the ears



KX250:

Drive shaft 3rd gear and 4th gear shift fork [A]	ears are shorter than those of the other two shift forks
Output shaft 4th gear shift fork [B]	guide pin goes to center side of the ears
Output shaft 5th gear shift fork [C]	guide pin goes to left side of the ears

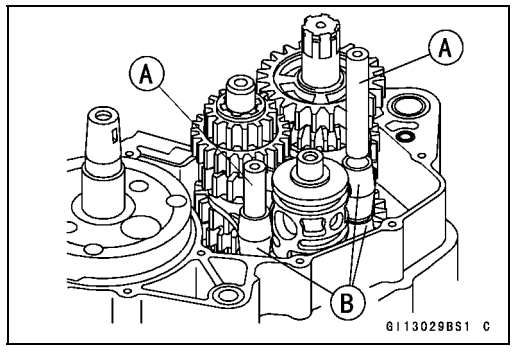


- Tighten the shift drum bearing retaining screws or bolts.

  Torque - Shift Drum Bearing Retaining Screws: 6.4 N·m (0.65 kgf·m, 56 in·lb) (KX125 ~ M1)
  Shift Drum Bearing Retaining bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb) (KX250), (KX125-M2 ~)

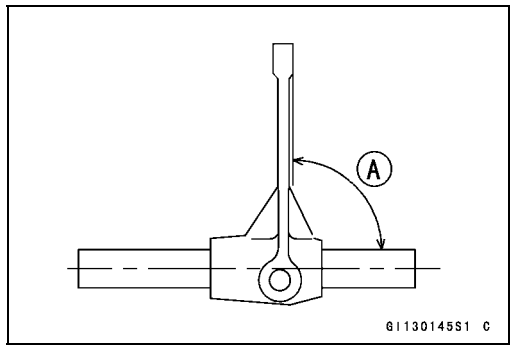
- Install the shift dram [A].
- Fit the shift fork guide pins into the corresponding shift drum grooves.
- Apply a little transmission oil to the shift rods [A], and slide them into the shift forks [B].
- Holding the shift drum with the suitable too and tighten the shift drum operating plate bolt.

  Torque - Shift Drum Operating Cam Bolt: 24 N·m (2.4 kgf·m, 17.0 ft·lb)



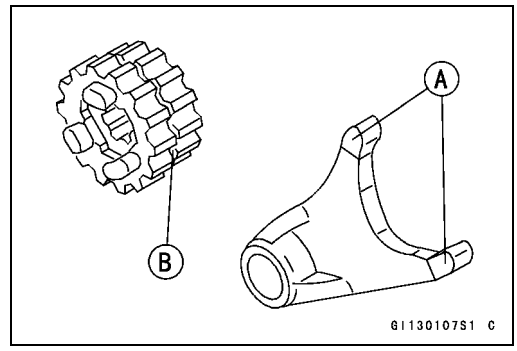
Shift Fork Bending

- Visually inspect the shift forks, and replace any fork that is bent. A bent fork could cause difficulty in shifting, or allow the transmission to jump out of gear when under power.
  A. 90°



Transmission

Shift Fork/Gear Groove Wear



- Measure the thickness of the shift fork ears [A], and measure the width [B] of the shift fork grooves in the transmission gears.

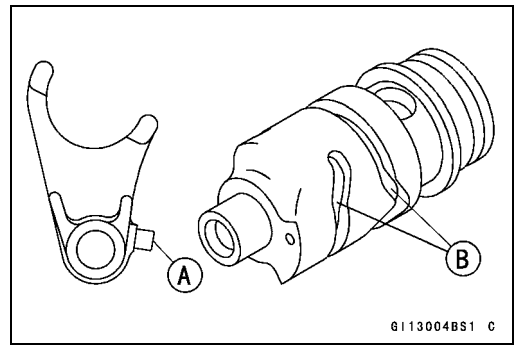
★If the thickness of a shift fork ear is less than the service limit, the shift fork must be replaced.

Shift Fork Ear Thickness
Standard:
KX125 4.9 ~ 5.0 mm (0.1768 ~ 0.1969 in.)
KX250 4.4 ~ 4.5 mm (0.1732 ~ 0.1772 in.)
Service Limit:
KX125 4.8 mm (0.189 in.)
KX250 4.3 mm (0.169 in.)

★If a gear shift fork groove is worn over the service limit, the gear must be replaced.

Shift Fork Groove Width
Standard:
KX125 5.05 ~ 5.15 mm (0.1988 ~ 0.2028 in.)
KX250 4.55 ~ 4.65 mm (0.1791 ~ 0.1830 in.)
Service Limit:
KX125 5.25 mm (0.207 in.)
KX250 4.75 mm (0.187 in.)

Shift Fork Guide Pin/Shift Drum Groove Wear



- Measure the diameter [A] of each shift fork guide pin, and measure the width [B] of each shift drum groove.

★If the guide pin on any shift fork is less than the service limit, the fork must be replaced.

Shift Fork Guide Pin Diameter
Standard: 5.90 ~ 6.00 mm (0.2323 ~ 0.2362 in.)
Service Limit: 5.80 mm (0.228 in.)

★If any shift drum groove is worn over the service limit, the drum must be replaced.

Shift Drum Groove Width
Standard: 6.05 ~ 6.20 mm (0.2382 ~ 0.2440 in.)
Service Limit: 6.25 mm (0.246 in.)

Gear Damage

- Visually inspect the gear teeth on the transmission gears.

★Repair lightly damaged gear teeth with an oilstone. The gear must be replaced if the teeth are badly damaged.

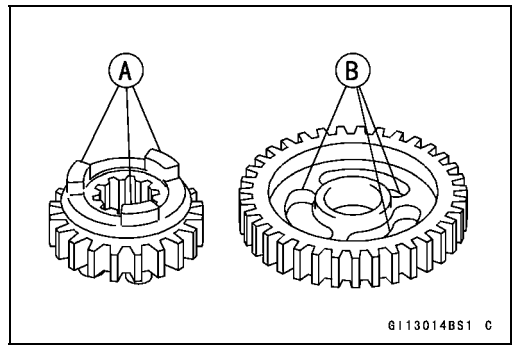
★When gear is repaired or replaced, the driving gear should also be inspected and repaired or replaced if necessary.

Transmission

Gear Dog/Gear Dog Hole Damage

- Visually inspect the gear dogs [A] and gear dog holes [B].

★Replace any damaged gears or gears with excessively worn dogs or dog holes.



Ball Bearing Wear

- Check the ball bearing on the crankcase.

★Since the ball bearings are made to extremely close tolerances, the wear must be judged by feel rather than measurement. Clean each bearing in a high-flash point solvent, dry it (do not spin the bearing while it is dry), and oil it with transmission oil.

○Spin the bearing by hand to check its condition.

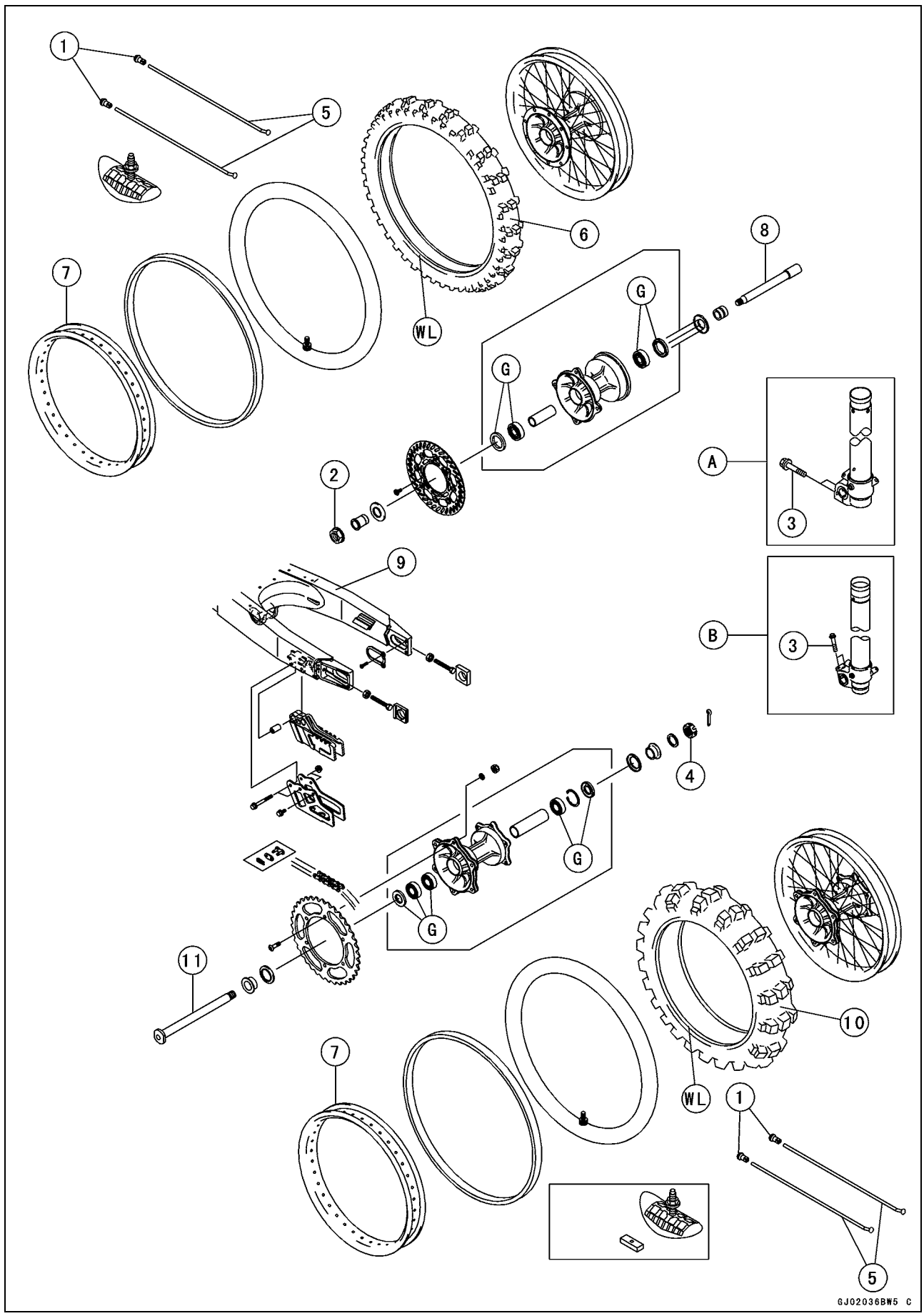
★If the bearing is noisy, does not spin smoothly, or has any rough spots, replace it.

Wheels/Tires

Table of Contents

Exploded View 9-2
Specifications 9-4
Special Tool 9-5
Wheels (Rims) 9-6
  Front Wheel Removal 9-6
  Front Wheel Installation 9-7
  Rear Wheel Removal 9-8
  Rear Wheel Installation 9-8
  Wheels Inspection 9-10
  Spoke Tightness Inspection 9-10
  Rim Runout Inspection 9-10
  Axle Inspection 9-10
Tires 9-11
  Air Pressure Inspection/Adjustment 9-11
  Tires Inspection 9-11
  Tire Removal 9-12
  Installation 9-13
Hub Bearings 9-15
  Hub Bearing Removal 9-15
  Hub Bearing Installation 9-15
  Hub Bearing Inspection 9-15

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Spoke Nipple	2.2	0.22	19 in·lb	
2	Front Axle	78	8.0	58	
3	Front Axle Clamp Bolts	20	2.0	14.5	
4	Rear Axle Nut	110	11.0	80	

5. Spoke
6. Front Tire
7. Rim
8. Front Axle
9. Swingarm
10. Rear Tire
11. Rear Axle

A: KX125/250-M1 model
B: KX125/250-M2 model~
G: Apply grease.
WL: Apply soap and water solution, or rubber lubricant.

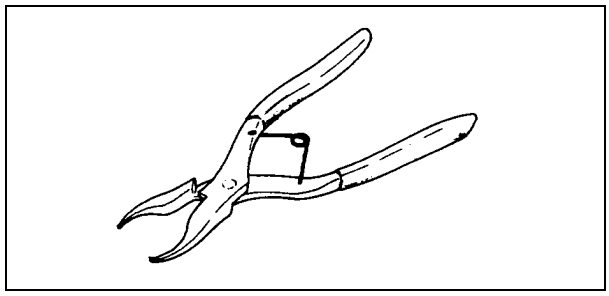
Specifications

Item	Standard	Service Limit
Wheels (Rims)		
Rim Runout:		2 mm (0.079 in.)
Axial	1.0 mm (0.039 in.) or less	2 mm (0.079 in.)
Radial	1.0 mm (0.039 in.) or less	
Axle Runout/ 100 mm	0.1 mm (0.004 in.)	0.2 mm (0.008 in.)
Tires Air Pressure		
Front and Rear	100 kPa (1.0 kgf/cm², 14 psi)	– – –
Tires		
Standard Tire:		
KX125		
Front:		
Size	80/100-21 51M	– – –
Make	DUNLOP	
Type	D739FA, Tube (EUR) D755FJ, Tube	
(KX125-M3 ~)	D742F, Tube (other than EUR)	
Rear:		
Size	100/90-19 57M	– – –
Make	DUNLOP	
Type	D739, Tube (EUR) D755G, Tube	
(KX125-M3 ~)	D756, Tube (other than EUR)	
KX250		
Front:		
Size	80/100-21 51M	– – –
Make	BRIDGESTONE (EUR) DUNLOP	
Type	M601, Tube (EUR) D755FJ, Tube	
Rear:		
Size	110/90-19 62M	– – –
Make	BRIDGESTONE (EUR) DUNLOP	
Type	M602, Tube (EUR) D755J, Tube	

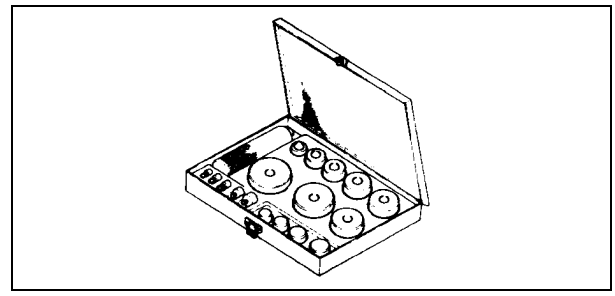
(EUR): Europe Model

Special Tool

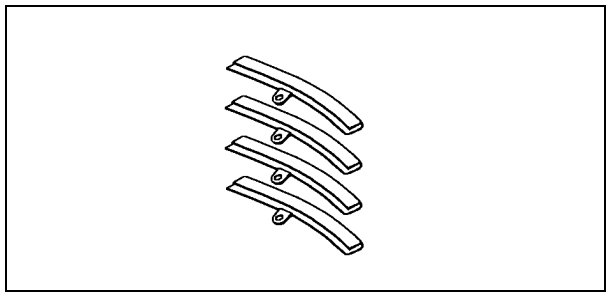
Inside Circlip Pliers:
57001-143



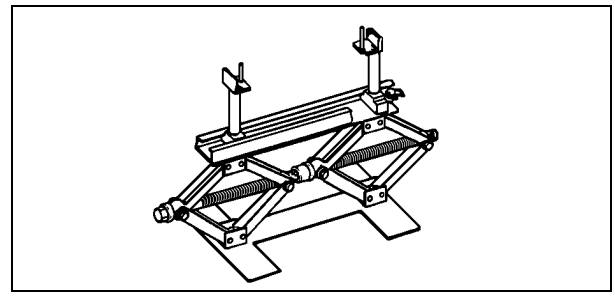
Bearing Driver Set:
57001-1129



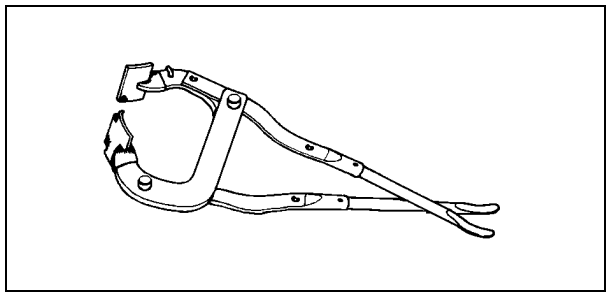
Rim Protector:
57001-1063



Jack:
57001-1238



Bead Breaker Assembly:
57001-1072



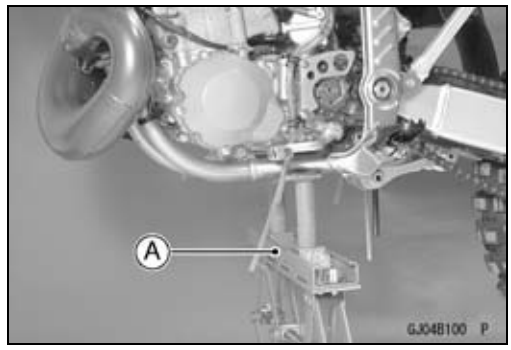
Wheels (Rims)

Front Wheel Removal

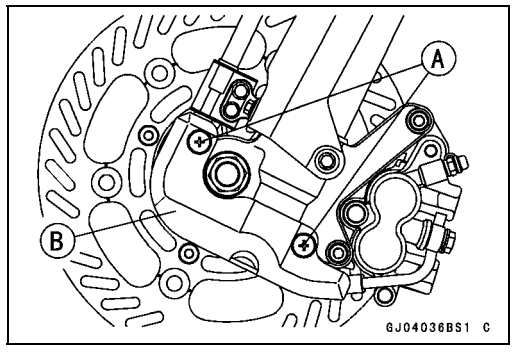
- Using the jack [A] under the frame, and stabilize the motorcycle.

  Special Tool - Jack: 57001-1238

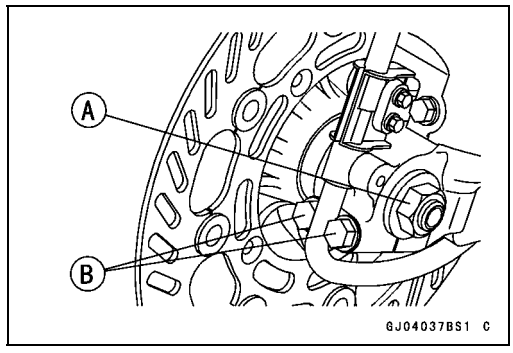
- Place a jack under the engine to raise the front wheel off the ground.



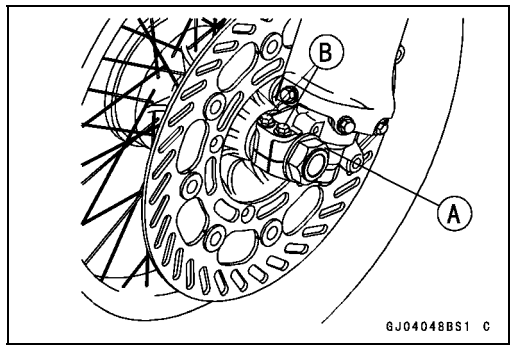
- For KX125/250-M1 model, unscrew the guard screw [A] and remove the guard [B].



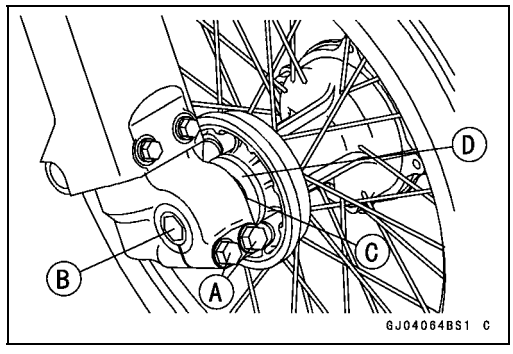
- Unscrew the axle nut [A].
- Loosen the left axle clamp bolts [B].



- For KX125/250-M2 model~; as shown in the figure.



- Loosen the right axle clamp bolts [A], remove the axle [B], and pull out the wheel. Take off the collar [C] and cap [D] from each side of the front hub.

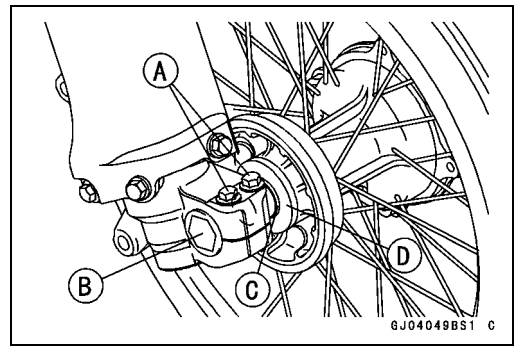


CAUTION

Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so the disc does not touch the ground.

Wheels (Rims)

● For KX125/250-M2 model~; as shown in the figure.

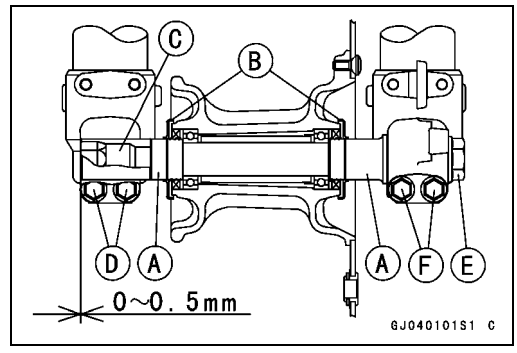


● Insert a wood wedge between the disc brake pads this prevents them from being moved out of their proper position, should the brake lever be squeezed accidentally.

Front Wheel Installation

● Apply grease to the seals.
● Fit the projection on the cap to the groove on the collar.
● Install the caps [B] collars [A] on the left (longer collar) and right (shorter collar) side of the hub.
● Insert the axle [C] from right side.
● Unbolt the right axle clamp bolts [D] temporally.
● Tighten the axle nut [E].

Torque - Front Axle: 78 N·m (8.0 kgf·m, 58 ft·lb)



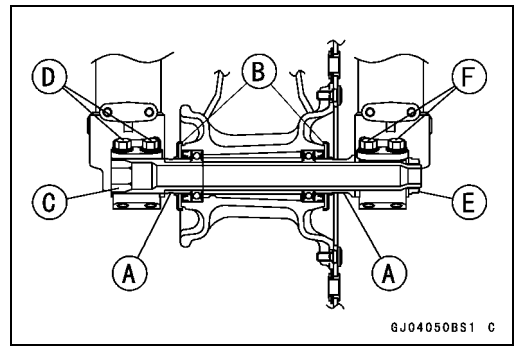
● Remove the jack. Push and release the handlebars five times or more apply the front brake to move the front forks so that the axle shaft has a snug fit with the axle holder.
● Tighten the left axle clamp bolts [F] first, and tighten the right axle clamp bolts.

Torque - Front Axle Clamp Bolts: 20 N·m (2.0 kgf·m, 14.5 ft·lb)

NOTE

○*Tighten the two clamp bolts alternately two times to ensure even tightening torque.*

● For KX125/250-M2 model~; as shown in the figure.



● Check the front brake for good braking power and no brake drag.

⚠ WARNING

Do not attempt to drive the motorcycle until a full brake lever is obtained by pumping the brake lever until the pads are against the disc. The brake will not function on the first application of the lever if this is not done.

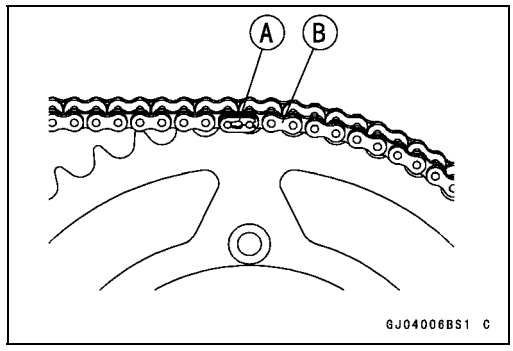
Wheels (Rims)

Rear Wheel Removal

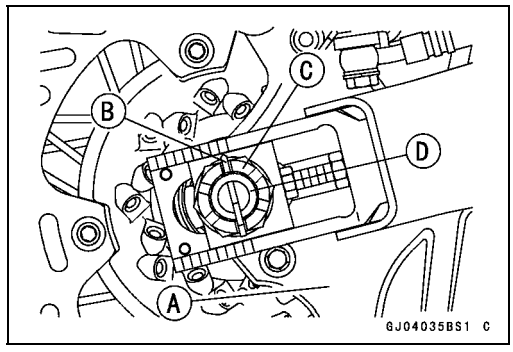
- Using the jack under the frame so that the rear wheel is raised off the ground.

Special Tool - Jack: 57001-1238

- Remove the clip [A] from the master link using pliers, and free the drive chain [B] from the rear sprocket.



- Remove
  Disc Cover [A]
  Cotter Pin [B]
  Axle Nut [C]
- Pull out the axle [D].
- Move the rear wheel back with the rear caliper installed.
- Take off the collar and cap from the each side of the rear hub.



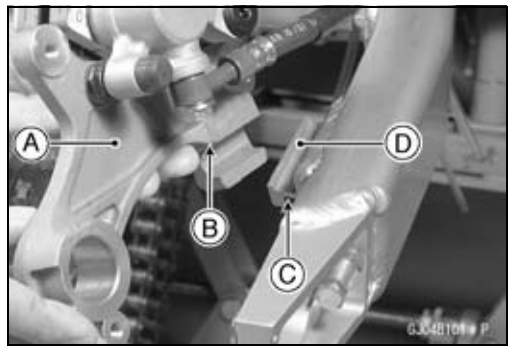
CAUTION

Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so the disc does not touch the ground.

- Insert a wood wedge between the brake pads. This prevents them from being moved out of their proper position, should the brake pedal be squeezed accidentally.

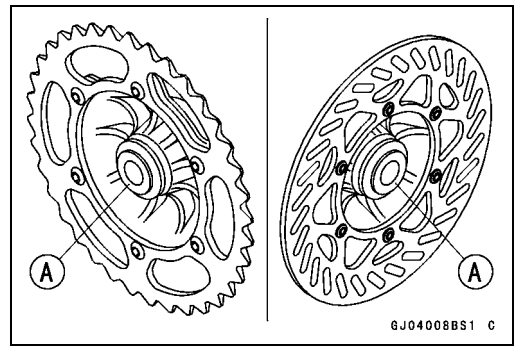
Rear Wheel Installation

- Fit the brake holder stop [A] with the stop grooves [B] against the swingarm stop space [C] with the stop projection [D].

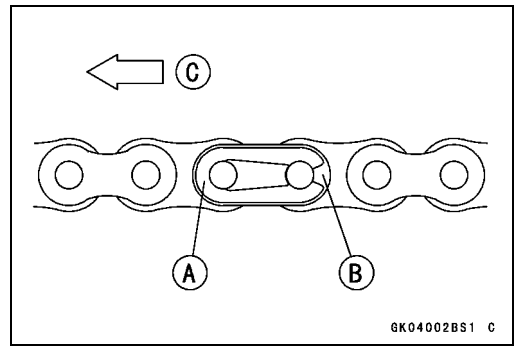


Wheels (Rims)

- Fit the projection on the cap to the groove on the collar.
- Install the collars [A] on the left and right side of the hub.



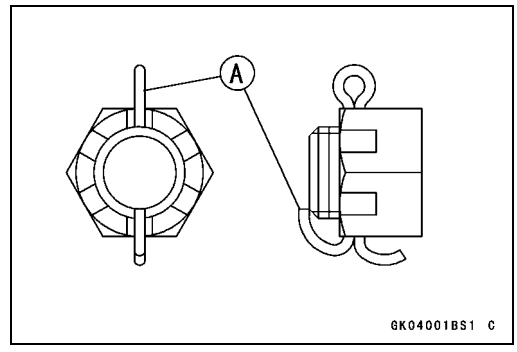
- Install the drive chain. Install the master link clip [A] so that the closed end of the "U" [B] points in the direction of chain rotation [C].



- Check the drive chain slack (see Final Drive chapter).
- Tighten the axle nut.

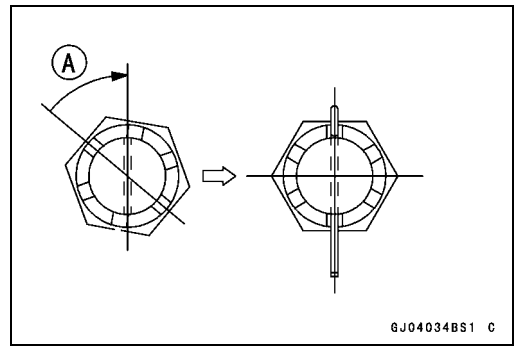
  Torque - Rear Axle Nut: 110 N·m (11 kgf·m, 80 ft·lb)

- Install the new cotter pin [A] and spread its end.



NOTE

○*When inserting the cotter pin, if the slots in the nut do not align with the cotter pin hole in the axle shaft, tighten the nut clockwise [A] up to next alignment.*
○*It should be within 30 degree.*
○*Loosen once tighten again when the slot goes past the nearest hole.*



- Install disc cover.
- Check the rear brake for good braking power and no brake drag.

⚠ WARNING

Do not attempt to drive the motorcycle until a full brake pedal is obtained by pumping the brake pedal until the pads are against the disc. The brake will not function on the first application of the pedal if this is not done.

Wheels (Rims)

Wheels Inspection

- Place the jack under the frame so that the front/rear wheel is raised off the ground.

Special Tool - Jack: 57001-1238

- Spin the wheel lightly, and check for roughness or binding.

★If roughness or binding is found, replace the hub bearings.

- Visually inspect the front and rear axles for damage.

★If axle is damaged or bent, replace it.

Spoke Tightness Inspection

- Refer to the Spoke Tightness Inspection in the Periodic Maintenance chapter.

Rim Runout Inspection

- Refer to the Rim Runout Inspection in the Periodic Maintenance chapter.

Axle Inspection

- Visually inspect the front and rear axle for damages.

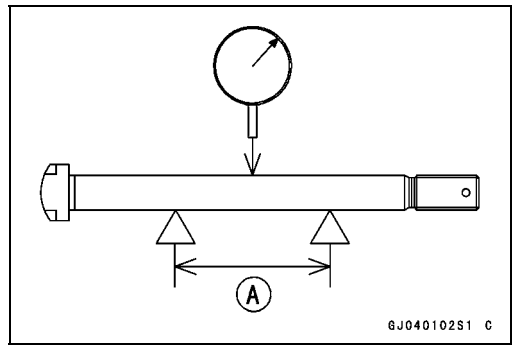
★If the axle is damaged or bent, replace it.

- Place the axle in V blocks that are 100 mm (3.937 in.) [A] apart, and set a dial gauge on the axle at a point halfway between the blocks. Turn the axle to measure the runout. The difference between the highest and lowest dial readings is the amount of runout.

Axle Runout/100 mm (3.937 in.)

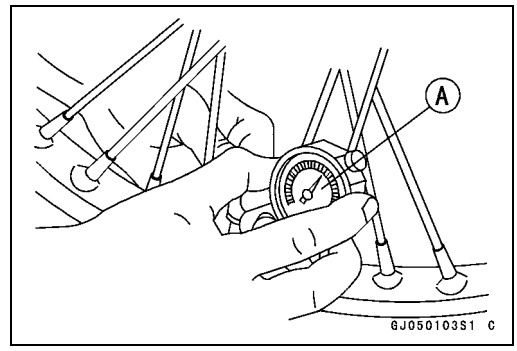
Standard:	**Under 0.1 mm (0.004 in.)**
Service Limit:	**0.2 mm (0.008 in.)**

★If runout exceeds the service limit, replace the axle.



Tires

Air Pressure Inspection/Adjustment



- Using tire air pressure gauge [A], measure the tire pressure when the tires are cold.

★Adjust the tire air pressure to suit track conditions and rider preference, but do not stray too far from the recommended pressure.

Track Condition	Tire Pressure
When the track is wet, muddy, sandy or slippery, reduce the tire pressure to increase the tire tread surface on the ground.	80 kPa (0.8 kgf/cm², 11 psi) ↑
When the track is pebbly or hard, increase the tire pressure to prevent damage or punctures, though the tires will skid more easily.	↓ 100 kPa (1.0 kgf/cm², 14 psi)

Tires Inspection

As the tire treads wears down, the tire becomes more susceptible the puncture and failure.

- Remove any imbedded stones or other foreign particles from the tread.
- Visually inspect the tire for cracks and cuts, replacing the tire in case of bad damage. Swelling or high spots indicate internal damage, requiring tire replacement.

⚠ WARNING

To ensure safe handling and stability, use only the recommended standard tires for replacement, inflated to the standard pressure.

NOTE

○*Check and balance the wheel when a tire is replaced with a new one.*

Tires

Standard Tire
KX125
Front:

Size:	**80/100-21 51M**
Make:	**DUNLOP**
Type:	**D739FA, Tube (EUR) D755FJ, Tube**
(KX125-M3 ~)	**D742F, Tube (EUR) D755FJ, Tube**

Rear:

Size:	**100/90-19 57M**
Make:	**DUNLOP**
Type:	**D739, Tube (EUR) D755G, Tube**
(KX125-M3 ~)	**D756, Tube (EUR) D755G, Tube**

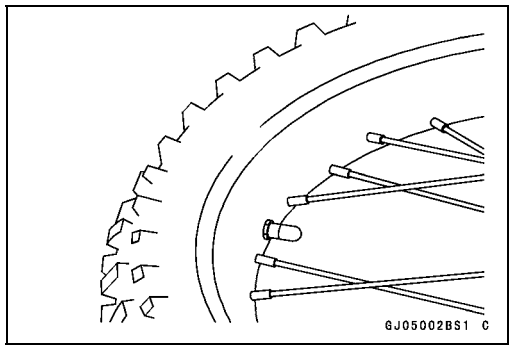
KX250:
Front:

Size:	**80/100-21 51M**
Make:	**BRIDGESTONE (EUR) DUNLOP**
Type:	**M601, Tube (EUR) D755FJ, Tube**

Rear:

Size:	**110/90-19 62M**
Make:	**BRIDGESTONE (EUR) DUNLOP**
Type:	**M602, Tube (EUR) D755J, Tube**

EUR: Europe Model



Tire Removal

CAUTION

Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so the disc does not touch the ground.

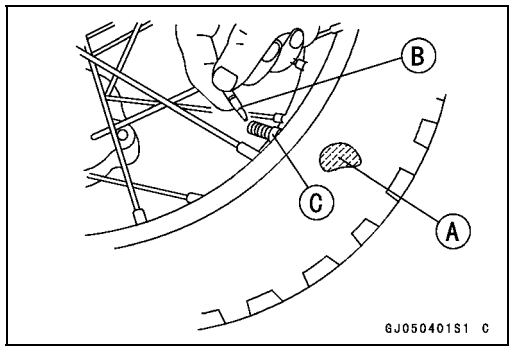
- Remove the wheel from the motorcycle (see Wheels Removal).
- To maintain wheel balance, mark [A] the valve stem position on the tire with chalk so that the tire can be reinstalled in the same position.
- Take out the valve core [B] to let out the air.
- Remove the valve stem nut [C].

○When handling the rim, be careful not to damage the rim flanges.

- Loosen the bead protector nut.
- Lubricate the tire beads and rim flanges on both sides with a soap and water solution or rubber lubricant. This helps the tire beads slip off the rim flanges.

CAUTION

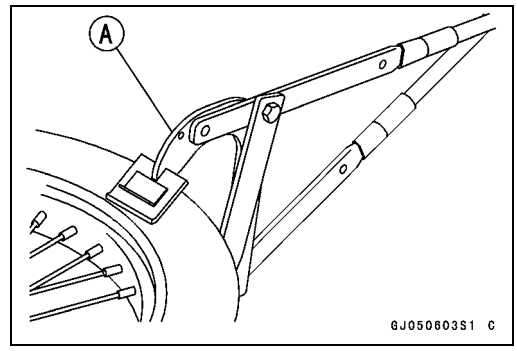
Never lubricate with mineral oil (engine oil) or gasoline because they will cause deterioration of the tire.



Tires

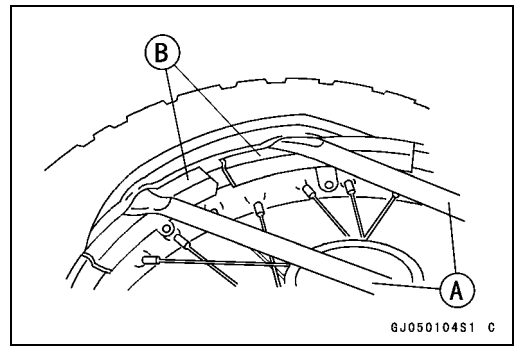
- Break the beads away from both sides of the rim with the bead breaker [A].

  Special Tool - Bead Breaker Assembly: 57001-1072



- Step on the side of the tire opposite valve stem, pry the tire off the rim with the tire iron [A] of the bead breaker protecting the rim with rim protectors [B].

  Special Tools - Rim Protector: 57001-1063
  Bead Breaker Assembly: 57001-1072



CAUTION

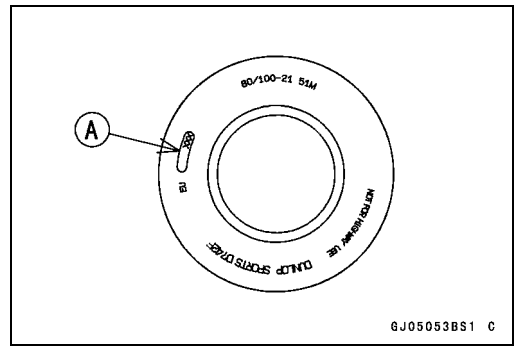
Take care not to inset the tire irons so deeply that the tube gets damaged.

- Remove the tube when one side of the tire is pried off.
- Pry the tire off the rim.

Installation

NOTE

○*The tires should be installed so that the year and week of manufacture [A] or the ID serial faces to left side.*



- Inspect the rim and tire, and replace them if necessary.
- Install the tube.
- Apply a soap and water solution, or rubber lubricant to the rim flange and tire beads.

Tires

- Position the tire on the rim so that the valve [A] is at the tire balance mark [B] (the chalk mark made during removal, or the yellow paint mark on a new tire. see Removal).
- Insert the valve stem into the rim, and screw the nut on loosely.
- Fit the rim protectors and use tire irons to install the tire bead.

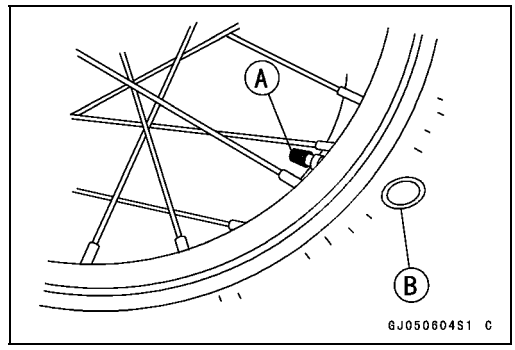
NOTE

○*To prevent rim damage, be sure to place the rim protectors at any place the tire irons are applied.*

- Pry one side of the tire back onto the rim. Fit the bead protector into the tire.
- Pry the other side of the tire onto the rim, starting at the side opposite the valve.

○Take care not to insert the tire irons so deeply that the tube is damaged.

- Install the other side of the tire bead onto the rim in the same manner.
- Check that the tube is not pinched between the tire and rim.
- Tighten the bead protector nut and valve stem nut, and put on the valve cap.
- Check and adjust the air pressure after installing.



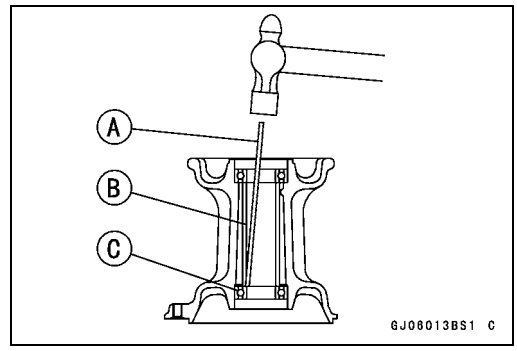
Hub Bearings

Hub Bearing Removal

● Remove the wheel (see Wheel Removal).

CAUTION

Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that the disc does not touch the ground.

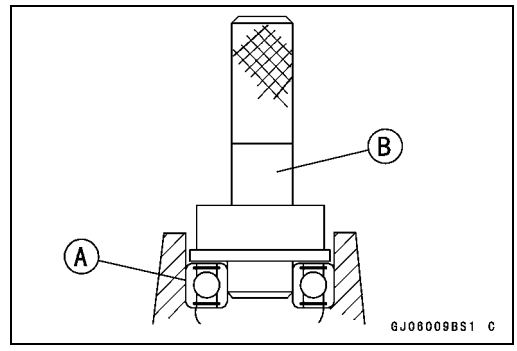


● Remove the oil seals and circlips.
● Remove the hub bearing by tapping evenly around the bearing inner race as shown.
[A] Bar
[B] Distance Collar
[C] Hub Bearing

Hub Bearing Installation

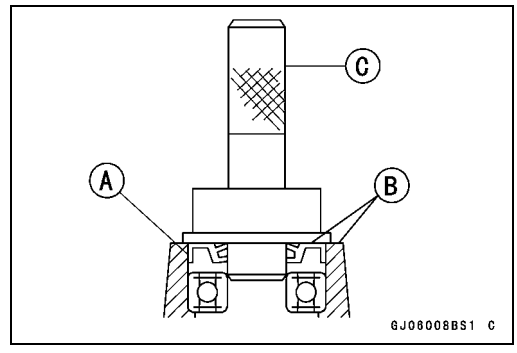
● Before installing the wheel bearings, blow any dirt or foreign particles out of the hub [B] with compressed air to prevent contamination of the bearings.
● Replace the bearings with new ones.
● Lubricate them and install them using the bearing driver set [A] so that the marked or shielded sides face out.
○Press in the bearings until they are bottomed.

Special Tool - Bearing Driver Set: 57001-1129



● Replace the circlips and oil seals with new ones.
● Press in the oil seals [A] so that the seal surface is flush [B] with the end of the hole.
● Apply high temperature grease to the oil seal lips.

Special Tool - Bearing Driver set: 57001-1129

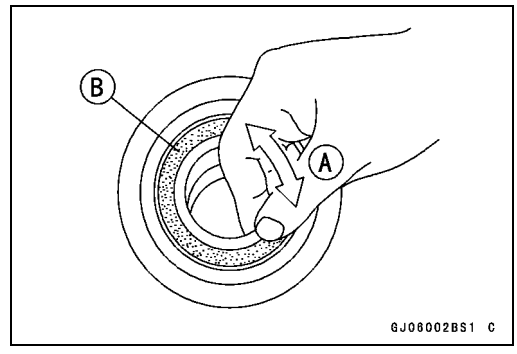


Hub Bearing Inspection

NOTE

○*It is not necessary to remove any bearings for inspection. If any bearings are removed, they will need to be replaced with new ones.*

● Spin [A] it by hand to check its condition.
★If it is noisy, does not spin smoothly, or has any rough spots, it must be replaced.
● Examine the bearing seal [B] for tears or leakage.
★If the seal is torn or is leaking, replace the bearing.

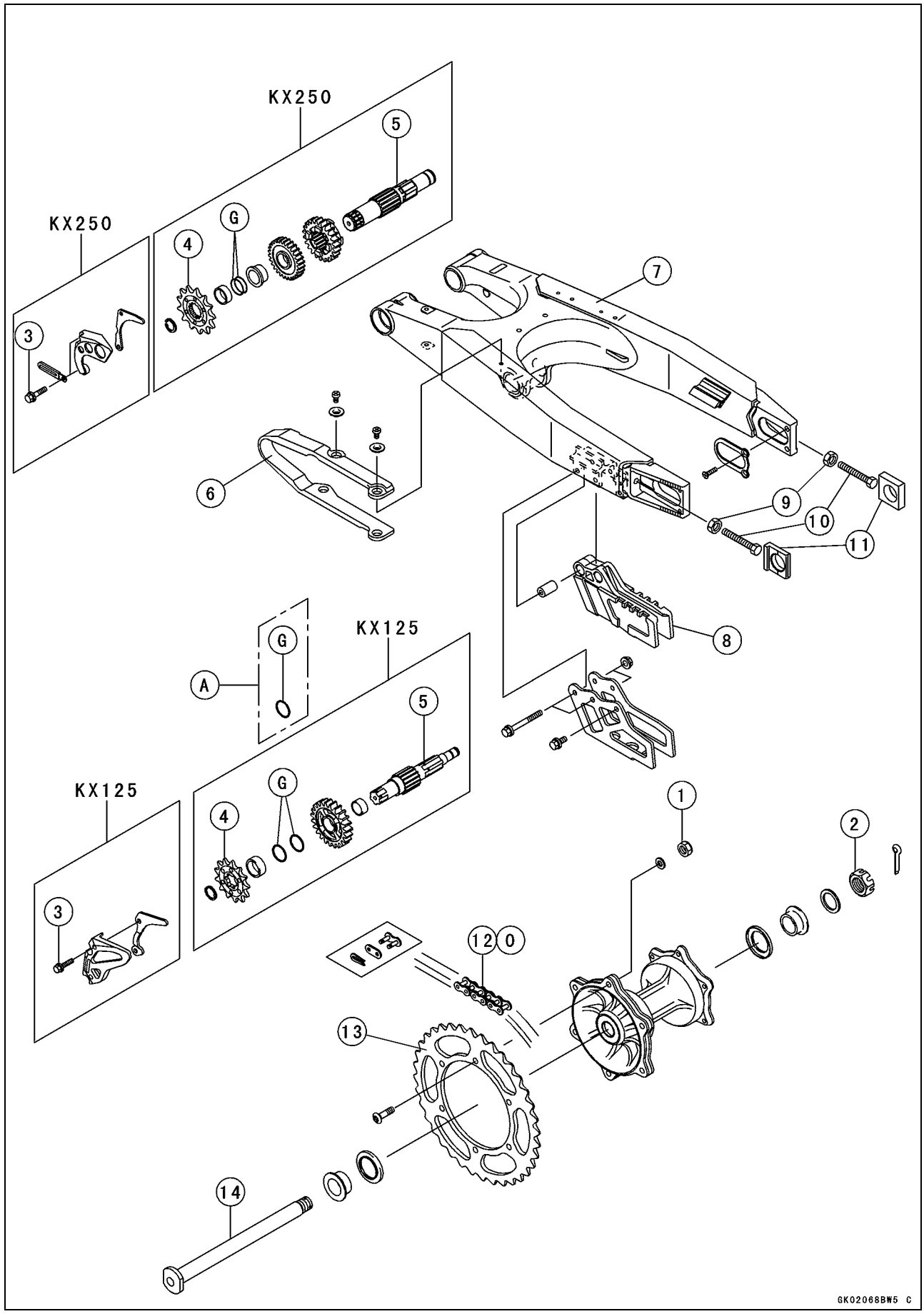


Final Drive

Table of Contents

Exploded View 10-2
Specifications 10-4
Special Tools 10-5
Drive Chain 10-6
Drive Chain Slack Inspection 10-6
Drive Chain Slack Adjustment 10-6
Wheel Alignment Inspection 10-6
Wheel Alignment Adjustment 10-6
Drive Chain Wear Inspection 10-6
Drive Chain Lubrication 10-6
Drive Chain Removal 10-6
Drive Chain Installation 10-6
Sprockets 10-7
Engine Sprocket Removal 10-7
Engine Sprocket Installation 10-7
Rear Sprocket Removal 10-7
Rear Sprocket Installation 10-7
Sprocket Wear Inspection 10-7
Rear Sprocket Warp Inspection 10-7

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
2	Rear Axle Nut	110	11.0	80	
1	Rear Sprocket Nuts	34	3.5	25	
3	Engine Sprocket Cover Bolts	4.9	0.5	43 in·lb	

4. Engine Sprocket
5. Output Shaft
6. Chain Slipper
7. Swingarm
8. Chain Guide
9. Locknut
10. Adjusting Bolt
11. Chain Adjuster
12. Drive Chain
13. Rear Sprocket
14. Rear Axle

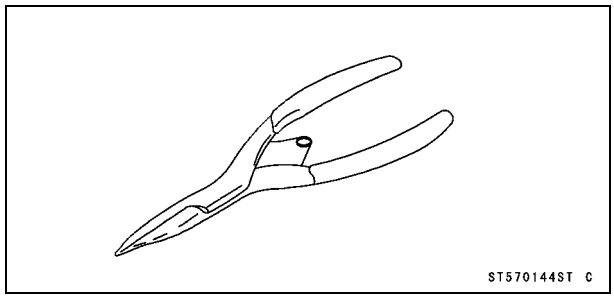
A: KX125-M1 ~ M2 Model
G: Apply grease.
O: Apply oil.

Specifications

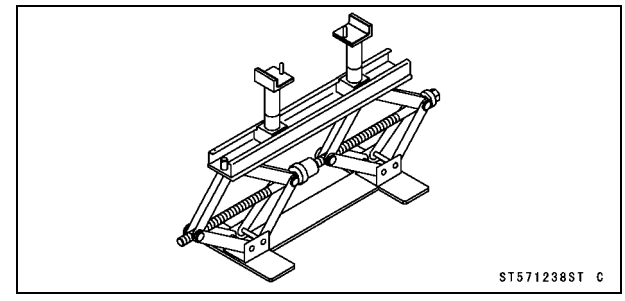
Item	Standard	Service Limit
Drive Chain		
Chain Slack	52 ~ 62 mm (2.05 ~ 2.44 in.)	– – –
Chain 20-link Length	317.5 ~ 318.2 mm (12.50 ~ 12.53 in.)	323 mm (12.72 in.)
Standard Chain:		
Make:	DAIDO	– – –
Type:	D.I.D 520DMA2	– – –
Length:		
KX125	112 Links	– – –
KX250	114 Links	– – –
Sprocket		
Rear Sprocket Warp	Under 0.4 mm (0.016 in.)	0.5 mm (0.020 in.)

Special Tools

Outside Circlip Pliers:
57001-144



Jack:
57001-1238

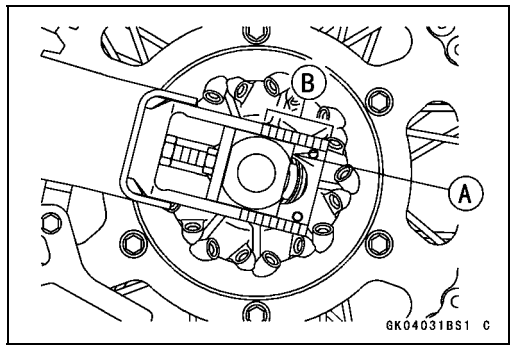


Drive Chain

Drive Chain Slack Inspection
- Refer to the Drive Chain Slack Inspection in the Periodic Maintenance chapter.

Drive Chain Slack Adjustment
- Refer to the Drive Chain Slack Adjustment in the Periodic maintenance chapter.

Wheel Alignment Inspection
- Check that the rear end [A] of the left chain adjuster aligns with the same swing arm mark [B] as the right chain adjuster.



⚠ WARNING

Misalignment of the wheel will result in abnormal wear, and may result in an unsafe riding condition.

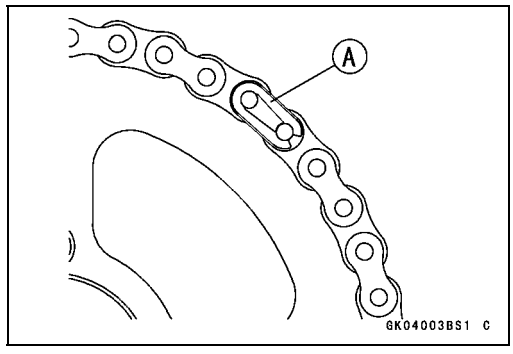
Wheel Alignment Adjustment

This procedure is the same as Drive Chain Slack Adjustment.

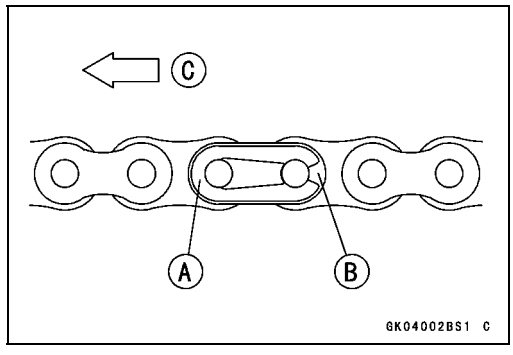
Drive Chain Wear Inspection
- Refer to the Drive Chain Wear Inspection in the Periodic Maintenance chapter.

Drive Chain Lubrication
- Refer to the Drive Chain Lubrication in the Periodic Maintenance chapter.

Drive Chain Removal
- Remove the engine sprocket cover.
- Remove the clip [A] from the master link using pliers, and free the drive chain from the rear sprocket.
- Remove the drive chain from the chassis.

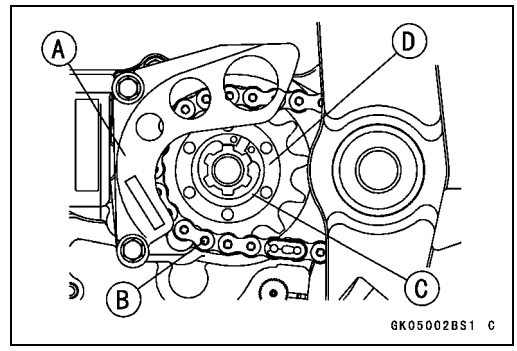


Drive Chain Installation
- Fit the drive chain back onto the sprockets with the ends at the rear sprocket.
- Install the master link from the frame side.
- Install the clip [A] so that the closed end of the "U" [B] pointed in the direction of chain rotation [C].
- Adjust the drive chain slack (see Drive Chain Slack Adjustment).
- Check the rear brake (see the Brakes chapter).



Sprockets

Engine Sprocket Removal



- Remove:
  Engine Sprocket Cover [A]
  Drive Chain [B] (free of engine sprocket)
- Remove the circlip [C], and pull off the engine sprocket [D].

Special Tool - Outside Circlip Pliers: 57001-144

Engine Sprocket Installation

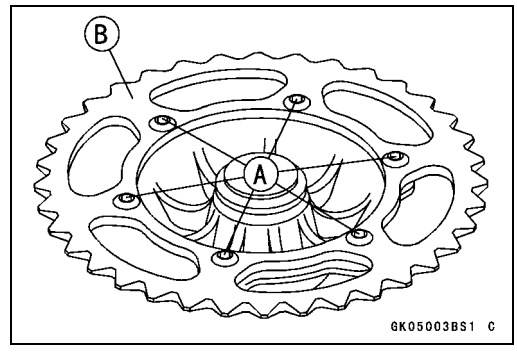
- Replace the circlip with a new one.
- Install the circlip so that the tooth is aligned with a spline groove.

Special Tool - Outside Circlip Pliers: 57001-144

- For KX250, clamp the air vent hoses with clamps which are installed together with engine sprocket cover.

Torque - Engine Sprocket Cover Bolts: 4.9 N·m (0.5 kgf·m, 43 in·lb)

Rear Sprocket Removal



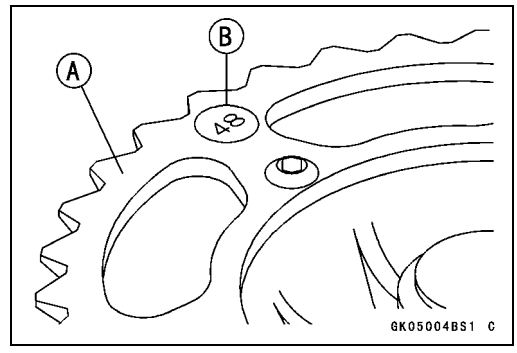
- Remove the rear wheel (see Wheels/Tires chapter).

CAUTION

Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that the disc does not touch the ground.

- Unscrew the rear sprocket bolts [A], and remove the rear sprocket [B].

Rear Sprocket Installation



- Install the rear sprocket [A] so that the marked side [B] faces out.
- Install the rear sprocket bolts and tighten the nuts.

Torque - Rear Sprocket Nuts: 34 N·m (3.5 kgf·m, 25 ft·lb)

Sprocket Wear Inspection

- Refer to the Sprocket Wear Inspection in the Periodic Maintenance chapter.

Rear Sprocket Warp Inspection

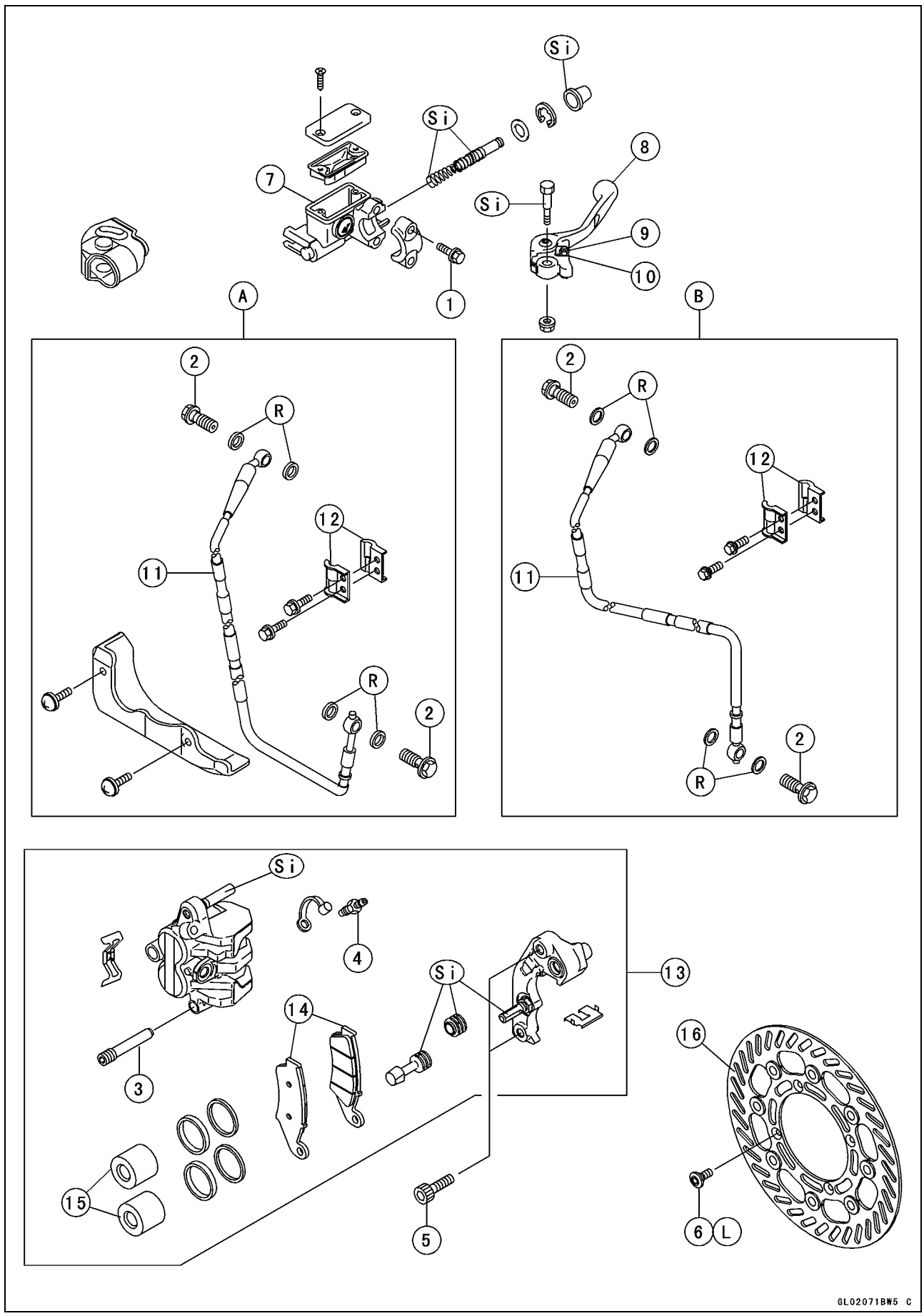
- Refer to the Rear Sprocket Warp Inspection in the Periodic Maintenance chapter.

Brakes

Table of Contents

Exploded View 11-2
Specifications 11-6
Special Tools 11-7
Brake Lever, Brake Pedal 11-8
  Brake Lever Play Adjustment 11-8
  Brake Pedal Position/Pedal Play Adjustment 11-8
  Brake Pedal Removal 11-8
  Brake Pedal Installation 11-9
Brake Fluid 11-10
  Fluid Level Inspection 11-10
  Fluid Change 11-10
  Bleeding the Brake Line 11-11
Caliper 11-13
  Caliper Removal 11-13
  Caliper Installation 11-14
  Caliper Disassembly 11-14
  Caliper Assembly 11-15
  Fluid Seal Damage 11-15
  Dust Seal and Cover Damage 11-15
  Piston Cylinder Damage 11-16
  Caliper Holder Shaft Wear 11-16
  Brake Pad Removal 11-16
  Brake Pad Installation 11-17
  Brake Pad Inspection 11-17
Master Cylinder 11-18
  Front Master Cylinder Removal 11-18
  Front Master Cylinder Installation 11-18
  Rear Master Cylinder Removal 11-18
  Rear Master Cylinder Installation 11-19
  Front Master Cylinder Disassembly 11-19
  Rear Master Cylinder Disassembly 11-19
  Master Cylinder Assembly 11-20
  Master Cylinder Inspection (Visual Inspection) 11-20
Brake Disk 11-21
  Brake Disc Inspection 11-21
Brake Hose 11-22
  Brake Hose Removal/Installation 11-22
  Brake Hose Inspection 11-22

Exploded View



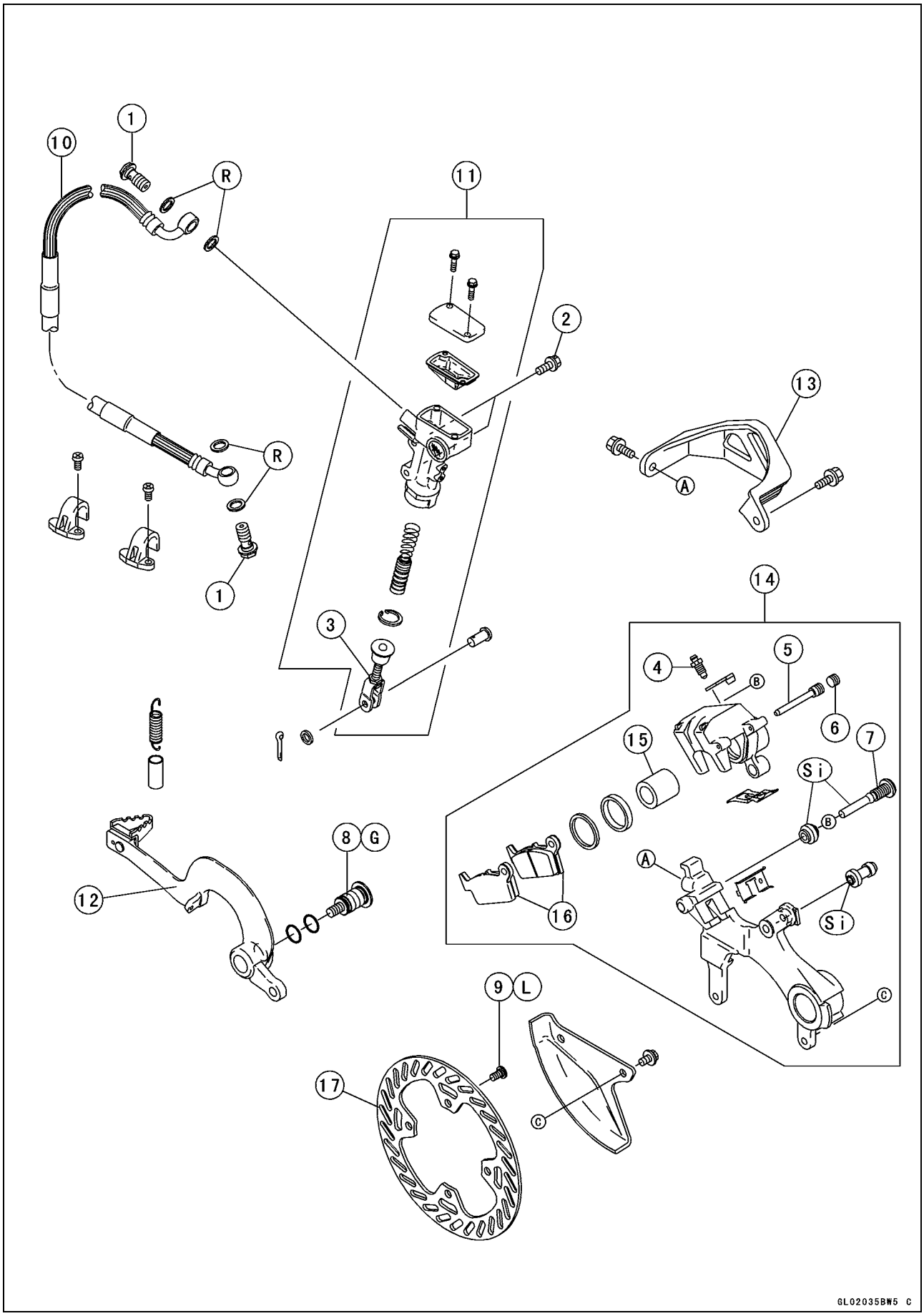
Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Front Master Cylinder Clamp Bolts	8.8	0.9	78 in·lb	
2	Brake Hose Banjo Bolts	25	2.5	18	
3	Brake Pad Bolt	18	1.8	13	
4	Caliper Bleed Valve	7.8	0.8	69 in·lb	
5	Caliper Mounting Bolts	25	2.5	18	
6	Brake Disc Mounting Bolts	9.8	1.0	87 in·lb	L

7. Front Brake Reservoir
8. Brake Lever
9. Brake Lever Adjuster
10. Locknut
11. Brake Hose
12. Clamps
13. Front Caliper
14. Brake Pad
15. Piston
16. Front Disc

A: KX125/250-M1 model
B: KX125/250-M2 model~
Si: Apply Silicone grease.
R: Replacement Parts

Exploded View



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Brake Hose Banjo Bolts	25	2.5	18	
2	Rear Master Cylinder Mounting Bolts	9.8	1.0	87 in·lb	
3	Rear Master Cylinder Push Rod Locknut	18	1.8	13	
4	Caliper Bleed Valve	7.8	0.8	69 in·lb	
5	Brake Pad Bolt	18	1.8	13	
6	Rear Brake Pad Bolt Plug	2.5	0.25	22 in·lb	
7	Caliper Holder Shaft	27	2.8	20	
8	Brake Pedal Mounting Bolt	25	2.5	18	
9	Brake Disc Mounting Bolts	23	2.3	16.6	L

10. Brake Hose
11. Rear Master Cylinder
12. Brake Pedal
13. Rear Caliper Cover
14. Rear Caliper
15. Piston
16. Brake Pad
17. Rear Disc

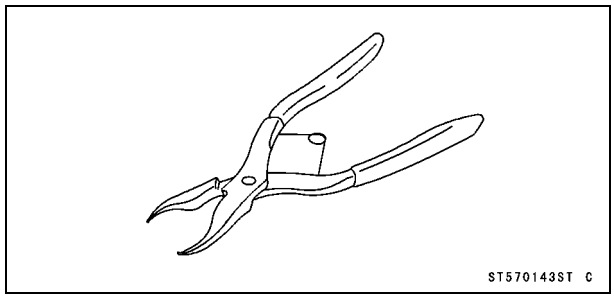
G: Apply high temperature grease.
Si: Apply Silicone grease.
R: Replacement Parts

Specifications

Item	Standard	Service Limit
Brake Adjustment		
Lever Play	Adjustable (to suit rider)	– – –
Brake Fluid		
Recommended Disc Brake Fluid:		– – –
Type		
Front	DOT3 or DOT4	– – –
Rear	DOT4	
Brake Pads		
Lining Thickness:		
Front	3.8 mm (0.150 in.)	1 mm (0.04 in.)
Rear	6.4 mm (0.252 in.)	1 mm (0.04 in.)
Brake Disc		
Thickness:		
Front	2.85 ~ 3.15 mm (0.112 ~ 0.124 in.)	2.5 mm (0.10 in.)
Rear	3.85 ~ 4.15 mm (0.152 ~ 0.163 in.)	3.5 mm (0.14 in.)
Runout	Not more than 0.25 mm (0.098 in.)	0.3 mm (0.01 in.)

Special Tools

Inside Circlip Pliers:
57001-143



Jack:
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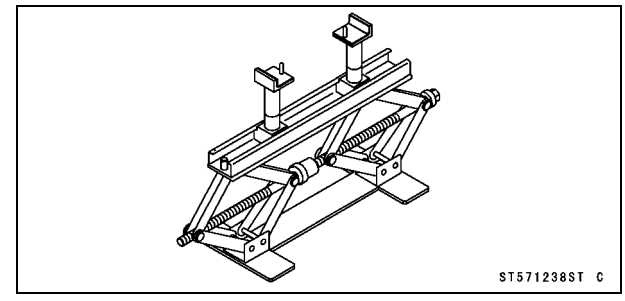


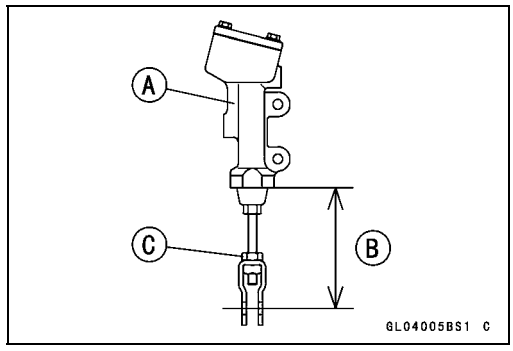
Brake Lever, Brake Pedal

Brake Lever Play Adjustment

● Refer to the Brake Lever Play Adjustment in the Periodic Maintenance chapter.

Brake Pedal Position/Pedal Play Adjustment

The brake pedal position and pedal play should not be adjusted. There is no pedal position adjustment device as such. The only adjustment is master cylinder push rod length.



NOTE

○*Usually it is not necessary to adjust the push rod length, but always adjust it when the rear master cylinder [A] is disassembled.*

○*When the brake pedal is in its rest position, measure the length [B] indicated in the figure.*

B: 79.3 mm (3.12 in.)
67.3 mm (2.65 in.) (KX125/250-M2)
C: Push Rod Locknut

★If the length is not within the specified length, adjust the clevis [A] as follows.

○Loosen the push rod locknut [B].

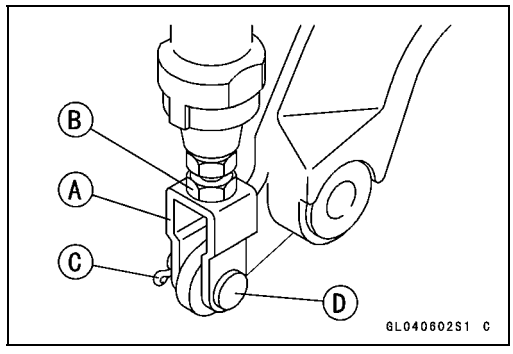
○Pull out the cotter pin [C] and the joint pin [D].

○Turn the clevis to obtain the specified length.

○Tighten the locknut.

Torque - Push Rod Locknut: 18 N·m (1.8 kgf·m, 13.0 ft·lb)

○Install the joint pin and new cotter pin.

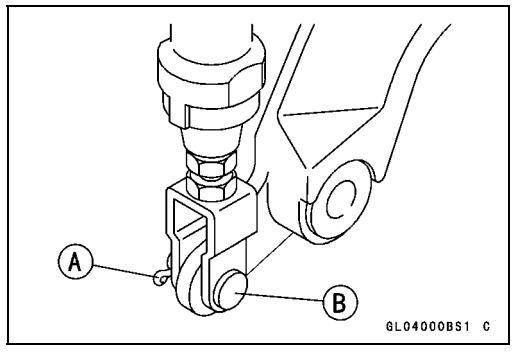


NOTE

○*If the pedal position is incorrect after adjusting the master cylinder push rod, the brake pedal may be deformed or incorrectly installed.*

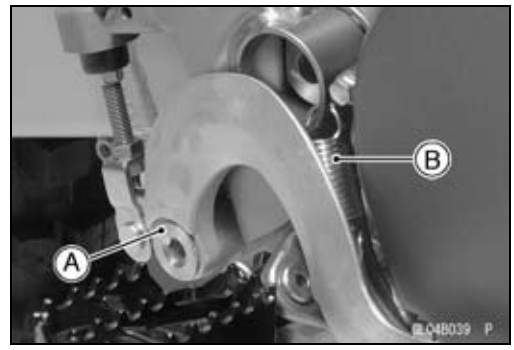
Brake Pedal Removal

● Remove:
Cotter Pin [A]
Joint Pin [B]
Washer



Brake Lever, Brake Pedal

- Remove the mounting bolt [A] and take off the brake pedal and return spring [B].



Brake Pedal Installation

- Check the pedal O-ring for signs of damage. If necessary, replace them with new one.
- Apply high temperature grease to the shaft portion of the brake pedal, and install the pedal with return spring onto the frame.

Torque - Brake Pedal Mounting Bolt: 25 N·m (2.5 kgf·m, 18 ft·lb)

- Check the brake pedal position.
- Install the joint pin, washer and a new cotter pin.

Brake Fluid

⚠ WARNING

When working with the disc brake, observe the precautions listed below.

1. Never reuse old brake fluid.
2. Do not use fluid from a container that has been left unsealed or that has been open for a long time.
3. Do not mix two types and brands of fluid for use in the brake. This lowers the brake fluid boiling point and could cause the brake to be ineffective. It may also cause the rubber brake parts to deteriorate.
4. Don't leave the reservoir cap off for any length of time to avoid moisture contamination of the fluid.
5. Don't change the fluid in the rain or when a strong wind is blowing.
6. Except for the disc pads and disc, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol for cleaning of the brake parts. Do not use any other fluid for cleaning these parts. Gasoline, engine oil, or any other petroleum distillate will cause deterioration of the rubber parts. Oil spilled on any part will be difficult to wash off completely and will eventually deteriorate the rubber used in the disc brake.
7. When handling the disc pads or disc, be careful that no disc brake fluid or any oil gets on them. Clean off any fluid or oil that inadvertently gets on the pads or disc with a high-flash point solvent. Do not use one which will leave an oily residue. Replace the pads with new ones if they cannot be cleaned satisfactorily.
8. Brake fluid quickly ruins painted surfaces; any spilled fluid should be completely wiped up immediately.
9. If any of the brake line fittings or the bleed valve is opened at any time, the **AIR MUST BE BLED FROM THE BRAKE LINE.**

Fluid Level Inspection

- Refer to the Brake Fluid Level Inspection in the Periodic Maintenance chapter.

Fluid Change

- Refer to the Brake Fluid Change in the Periodic Maintenance chapter.

Brake Fluid

Bleeding the Brake Line

The brake fluid has a very low compression coefficient so that almost all the movement of the brake lever or pedal is transmitted directly to the caliper for braking action. Air, however, is easily compressed. When air enters the brake lines, brake lever or pedal movement will be partially used in compressing the air. This will make the lever or pedal feel spongy, and there will be a loss in braking power.

⚠ WARNING

Be sure to bleed the air from the brake whenever brake lever or pedal action feels soft or spongy, after the brake fluid is changed, or whenever a brake line fitting has been loosened for any reason.

NOTE

○*The procedure to bleed the front brake line is as follows. Bleeding the rear brake line is the same as for the front brake.*

- Remove the reservoir cap, and check that there is plenty of fluid in the reservoir.
- With the reservoir cap off, slowly pump the brake lever several times until no air bubbles can be seen rising up through the fluid from the holes at the bottom of the reservoir.

○Bleed the air completely from the master cylinder by this operation.

- Install the reservoir cap.
- Attach a clear plastic hose to the bleed valve on the caliper, and run the other end of the hose into a container.
- Bleed the brake line and the caliper as follows:

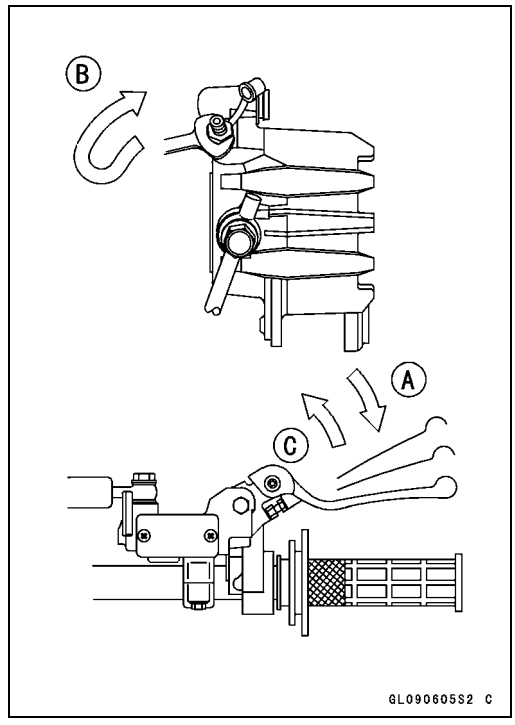
○Repeat this operation until no more air can be seen coming out into the plastic hose.

1. Pump the brake lever until it becomes hard, and apply the brake and hold it [A].
2. Quickly open and close the bleed valve while holding the brake applied [B].
3. Release the brake [C].

NOTE

○*The fluid level must be checked often during the bleeding operation and replenished with fresh brake fluid as necessary. If the fluid in the reservoir runs almost out any time during bleeding operation, the bleeding operation must be done over again from the beginning since air will have entered the line.*

○*Tap the brake hose lightly from the caliper to the reservoir for easier bleeding.*



Brake Fluid

- Remove the clear plastic hose.
- Tighten the bleed valves, and install the rubber caps.

Torque - Caliper Bleed Valve: 7.8 N·m (0.8 kgf·m, 69 in·lb)

- Check the fluid level.
- After bleeding is done, check the brake for good braking power, no brake drag, and no fluid leakage.

⚠ WARNING

Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever or pedal until the pads are against the disc. The brake will not function on the first application of the lever or pedal if this in not done.

Caliper

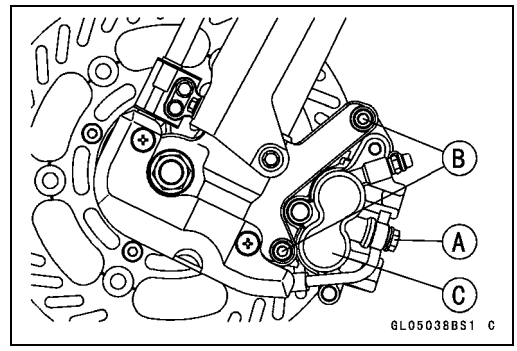
Caliper Removal

Front Brake

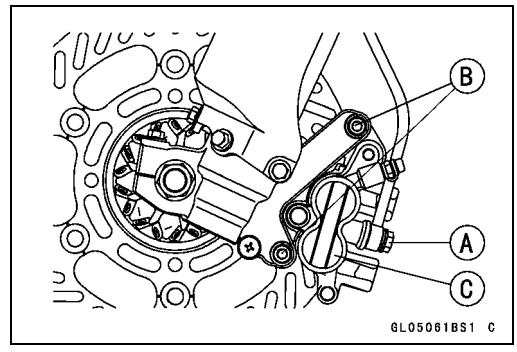
- Loosen the banjo bolt [A] so as not to spill brake fluid.
- Remove the caliper mounting bolts [B].
- Remove the banjo bolt and take off the brake hose from the caliper [C].
- If the caliper is to be disassembled after removal and if compressed air is not available, remove the piston using the following steps before disconnecting the brake hose from the caliper.

○Remove the pads.

○Pump the brake lever to remove the piston.

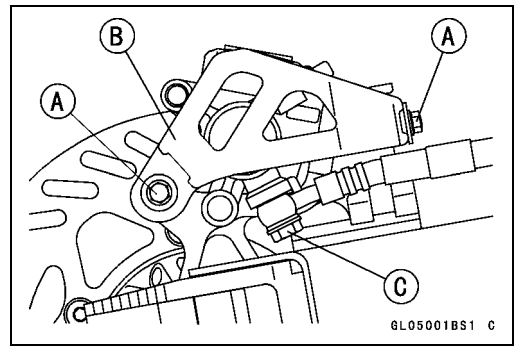


- For KX125/250-M2 model; as shown in the figure.



Rear Brake

- Unbolt the guard bolts [A] and remove the rear caliper guard [B].
- Loosen the banjo bolt [C] so as not to spill brake fluid.

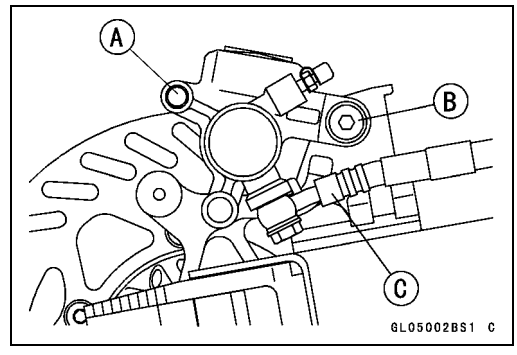


- Loosen the brake pad bolt [A] and caliper holder shaft [B] before the caliper removal if the caliper is to be disassembled.

NOTE

○*If the caliper is to be disassembled after removal and compressed air is not available, disassemble the caliper before brake hose removal (see Caliper Disassembly).*

- Remove the rear wheel. (see Wheels/Tires chapter)
- Unscrew the banjo bolt and remove the brake hose [C] from the caliper (see Brake Hose Removal/Installation).



CAUTION
Immediately wipe up any brake fluid that is spilled.

Caliper

Caliper Installation

● Tighten the brake pad bolts if it was removed.

Torque - Brake Pad Bolts: 18 N·m (1.8 kgf·m, 13 ft·lb)

Front Brake:

● Install the caliper and tighten the bolts.

Torque - Caliper Mounting Bolts: 25 N·m (2.5 kgf·m, 18.0 ft·lb)

Rear Brake:

● Before install the caliper, install the rear wheel (see Wheels/Tires chapter).

● Install the brake hose lower end.

○Replace the washers that are on each side of hose fitting with new ones.

Torque - Brake Hose Banjo Bolt: 25 N·m (2.5 kgf·m, 18.0 ft·lb)

● Bleed the brake line (see Bleeding the Brake Line).

● Check the brake for good braking power, no brake drag, and no fluid leakage.

⚠ WARNING

Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever or pedal until the pads are against the disc. The brakes will not function on the first application of the lever or pedal if this is not done.

Caliper Disassembly

● Remove the front/rear caliper (see Caliper removal).

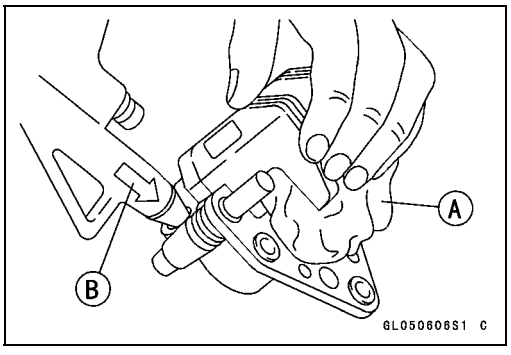
● Remove the pads and spring (see Pad Removal).

● Remove the caliper holder, shaft rubber friction boot and cover.

● Using compressed air, remove the piston(s).

○Cover the caliper opening with a clean, heavy cloth [A].

○Remove the piston(s) by lightly applying compressed air [B] to the hose joint opening.



⚠ WARNING

To avoid serious injury, never place your fingers or palm inside the caliper opening. If you apply compressed air into the caliper, the piston(s) may crush your hand or fingers.

NOTE

○*If the caliper is to be disassembled after removal and compressed air is not available, remove the piston(s) using the following three steps before disconnecting the brake hose from the caliper.*

○*Prepare a container for brake fluid, and perform the work above it.*

○*Remove the pads and spring (see Pad Removal).*

○*Pump the brake lever or pedal to remove the caliper piston(s).*

● Remove the dust seal(s) and fluid seal(s).

● Remove the bleed valve and rubber cap.

Caliper

Caliper Assembly

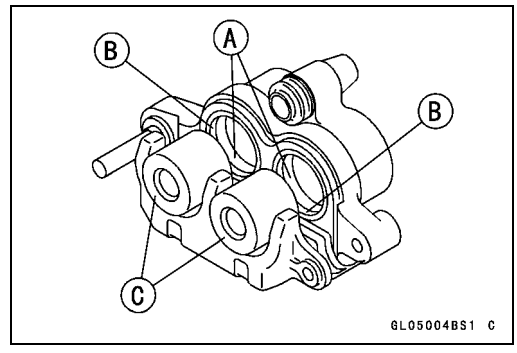
● Clean the caliper parts except for the pads.

CAUTION
For cleaning the parts, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol.

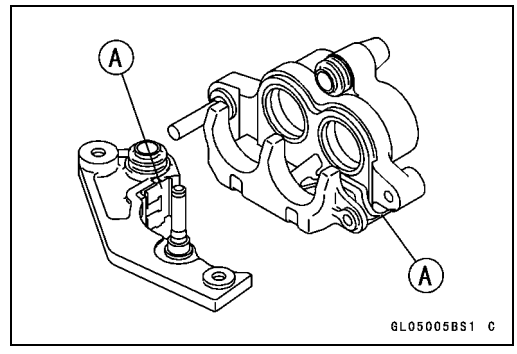
● Tighten the bleed valve with rubber cap.

Torque - Caliper Bleed Valve: 7.8 N·m (0.8 kgf·m, 69 in·lb)

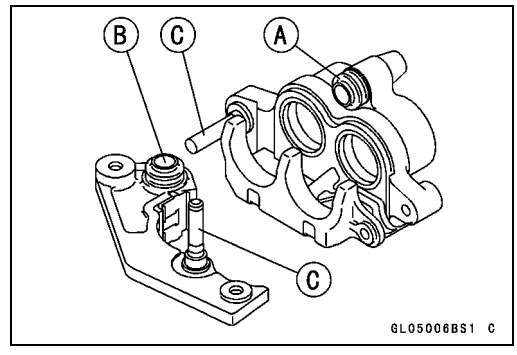
● Replace the fluid seals which are removed with new ones.
○Apply brake fluid to the fluid seals [A], and install them into the cylinders by hand.
● Replace the dust seals with new ones if they are damaged.
○Apply brake fluid to the dust seals [B], and install them into the cylinders by hand.
● Apply brake fluid to the outside of the pistons [C], and push them into each cylinder by hand.



● Install the anti-rattle spring [A] in the caliper as shown.



● Replace the shaft rubber friction boot [A] and dust cover [B] if they are damaged.
● Apply a thin coat of silicone grease to the caliper holder shafts [C] and holder holes (PBC is a special high temperature, water-resistant grease).
● Install the pads (see Pads Installation).
● Wipe up any spilled brake fluid on the caliper.



Fluid Seal Damage

The fluid seal around the piston maintains the proper pad/disc clearance. If this seal is not in good condition, pad wear will increase, and constant pad drag on the disc will raise brake and brake fluid temperature.

● Replace the fluid seals under any of the following conditions: (a) fluid leakage around the pad; (b) brakes overheat; (c) there is a large difference in left and right pad wear; (d) the seal is stuck to the piston. If the fluid seal is replaced, replace the dust seal as well. Also, replace all seals every other time the pads are changed.

Dust Seal and Cover Damage

● Check that the dust seals and covers are not cracked, worn, swollen, or otherwise damaged.
★If they show any damage, replace them.

Caliper

Piston Cylinder Damage

- Visually inspect the piston and cylinder surfaces.

★Replace the cylinder and piston if they are badly scored or rusty.

Caliper Holder Shaft Wear

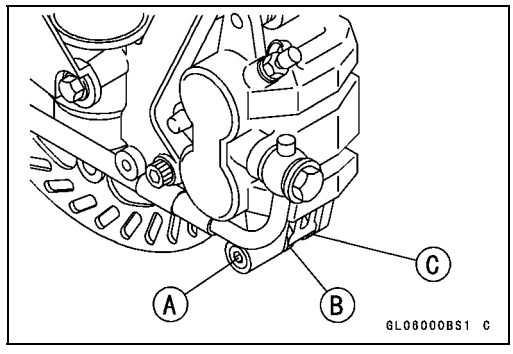
The caliper body must slide smoothly on the caliper holder shafts. If the body does not slide smoothly, one pad will wear more than the other, pad wear will increase, and constant drag on the disc will raise brake and brake fluid temperature.

- Check too see if the caliper holder shafts are not badly worn or stepped, or the rubber friction boot is not damaged.

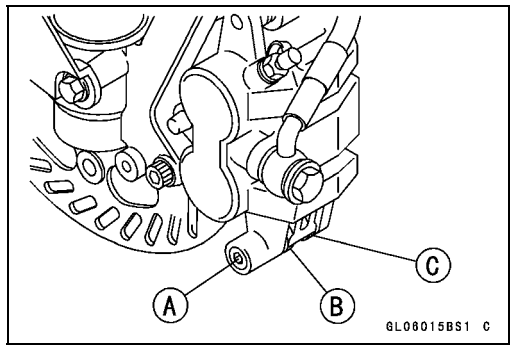
★If the shafts or rubber friction boot are damaged, replace the shafts, rubber friction boot, and the caliper holder.

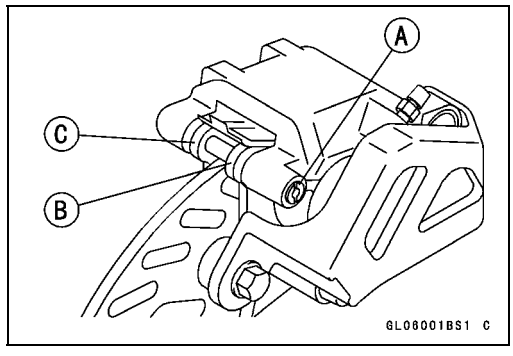
Brake Pad Removal

- Remove the plug and the pad bolt [A].
- Take the piston side pad [B].
- Push the caliper holder toward the piston, and then remove another pad [C] from the caliper holder.



- For KX125/250-M2 model~; as shown in the figure.





Caliper

Brake Pad Installation

- Push the caliper pistons in by hand as far as they will go.
- Install the piston side pad first, and then another pad.
- Tighten the brake pad bolt.

Torque - Brake Pad Bolt: 18 N·m (1.8 kgf·m, 13 ft·lb)

- Check the brake for good braking power, no brake drag, and no fluid leakage.

⚠ WARNING

Do not attempt to drive the motorcycle until a full brake lever or pedal is obtained by pumping the brake lever or pedal until the pads are against the disc. The brake will not function on the first application of the lever or pedal if this is not done.

Brake Pad Inspection

- Refer to the Brake Pad Wear Inspection in the Periodic Maintenance chapter.

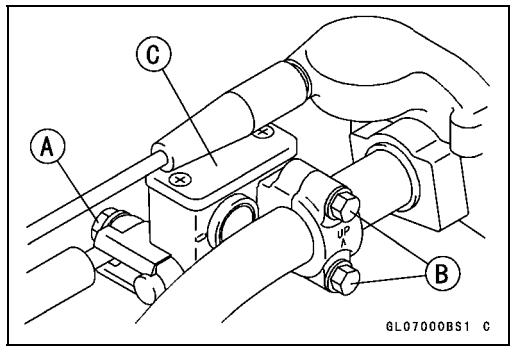
Master Cylinder

CAUTION

Brake fluid quickly ruins painted or plastic surfaces; any spilled fluid should be completely wished up immediately.

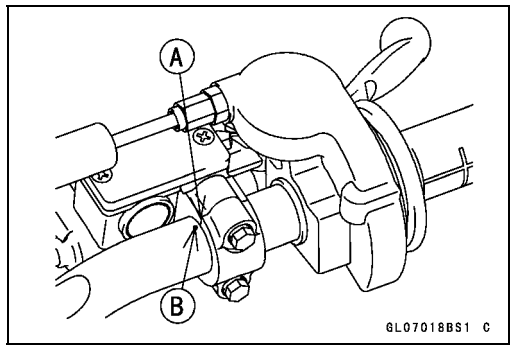
Front Master Cylinder Removal

- Remove the banjo bolt [A] to disconnect the upper brake hose from the master cylinder (see Brake Hose Removal/Installation).
- When removing the brake hose, temporarily secure the end of the brake hose to some high place to keep fluid loss to a minimum.
- Unscrew the clamp bolts [B], and take off the master cylinder [C] as an assembly with the reservoir and brake lever.



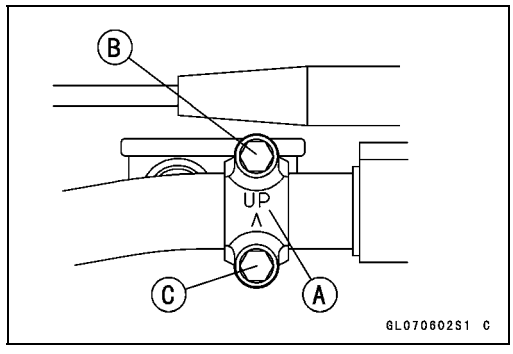
Front Master Cylinder Installation

- Position the master cylinder so that the vertical parting line [A] of the front master cylinder clamps align with the punch mark [B] on the handlebar.



- The master cylinder clamp must be installed with the arrow mark [A] upward.
- ○Tighten the upper clamp bolt [B] first, and then the lower clamp bolt [C] There will be a gap at the lower part of the clamp after tightening.

Torque - Master Cylinder Clamp Bolts: 8.8 N·m (0.9 kgf·m, 78 in·lb)



- Replace the washers that are on each side of hose fitting with new ones.
- Tighten the brake hose banjo bolt.

Torque - Brake Hose Banjo Bolt: 25 N·m (2.5 kgf·m, 18.0 ft·lb)

- Bleed the brake line (see Bleeding the Brake Line).
- Check the brake for good braking power, no brake drag, and no fluid leakage.

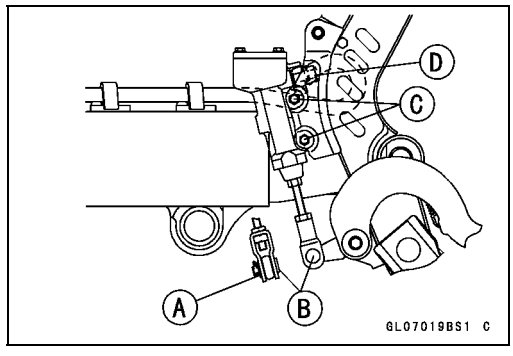
Rear Master Cylinder Removal

- Remove the cotter pin [A].
- Pull off the joint pin [B] with washer.

NOTE

○*Pull off the joint pin while pressing down the brake pedal.*

- Unscrew the master cylinder mounting bolts [C], and remove the master cylinder.
- Unscrew the brake hose banjo bolt [D] (see Brake Hose Removal/Installation).
- When removing the brake hose, temporarily secure the end of the brake hose to some high place to keep fluid loss to a minimum.



Master Cylinder

Rear Master Cylinder Installation

- Replace the cotter pin with a new one.
- Replace the washers are on each side of hose fitting with new ones.
- Tighten the following:

Torque - Brake Hose Banjo Bolt: 25 N·m (2.5 kgf·m, 18.0 ft·lb)
Rear Master Cylinder Mounting Bolts: 9.8 N·m (1.0 kgf·m, 87 in·lb)

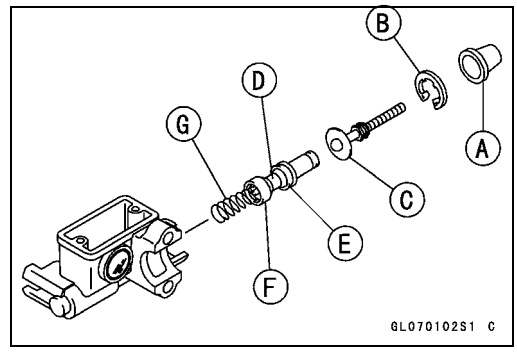
- Bleed the brake line (see Bleeding the Brake Line).
- Check the brake for good braking power, no brake drag, and no fluid leakage.
- Check the brake pedal position (master cylinder push rod length).

Front Master Cylinder Disassembly

- Remove the front master cylinder.
- Remove the reservoir cap and diaphragm, and pour the brake fluid into a container.
- Unscrew the locknut and pivot bolt, and remove the brake lever.
- Push the dust cover [A] out of place, and remove the circlip [B].

Special Tool - Inside Circlip Pliers: 57001-143

- Remove the washer [C], pull out the piston [D], secondary cup [E], primary cup [F], and return spring [G].



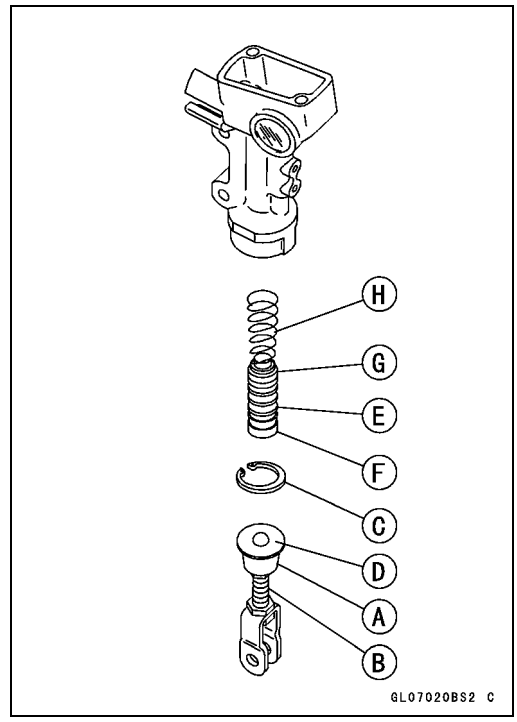
CAUTION
Do not remove the secondary cup from the piston since removal will damage it.

Rear Master Cylinder Disassembly

- Remove the rear master cylinder.
- Remove the reservoir cap and diaphragm, and pour the brake fluid into a container.
- Slide the dust cover [A] on the push rod [B] out of place, and remove the retainer [C].

Special Tool - Inside Circlip Pliers: 57001-143

- Pull out the push rod with the piston stop [D].
- Take off the piston [E], secondary cup [F], primary cup [G], and return spring [H].



CAUTION
Do not remove the secondary cup from the piston since removal will damage it.

Master Cylinder

Master Cylinder Assembly

- Before assembly, clean all parts including the master cylinder with brake fluid or alcohol.
- Apply brake fluid to the removed parts and to the inner wall of the cylinder.

CAUTION

Except for the disc pads and disc, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol for cleaning brake parts. Do not use any other fluid for cleaning these parts. Gasoline, engine oil, or any other petroleum distillate will cause deterioration of the rubber parts. Oil spilled on any part will be difficult to the wash off completely, and will eventually deteriorate the rubber used in the disc brake.

- Take care not to scratch the piston or the inner wall of the cylinder.
- Tighten the brake lever pivot bolt and the locknut securely.

Master Cylinder Inspection (Visual Inspection)

- Disassemble the front and rear master cylinders.
- Check that there are no scratches, rust or pitting on the inner wall of each master cylinder [A] and on the outside of each piston [B].

★If a master cylinder or piston shows any damage, replace them.

- Inspect the primary [C] and secondary [D] cups.

★If a cup is worn, damaged, softened (rotted), or swollen, the piston assembly should be replace to renew the cups.

★If fluid leakage is noted at the brake lever, the piston assembly should be replaced to renew the cup.

- Check the dust covers [E] for damage.

★If they are damaged, replace them.

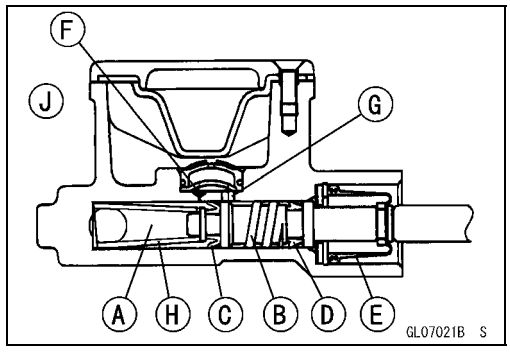
- Check that the relief [F] and supply [G] ports are not plugged.

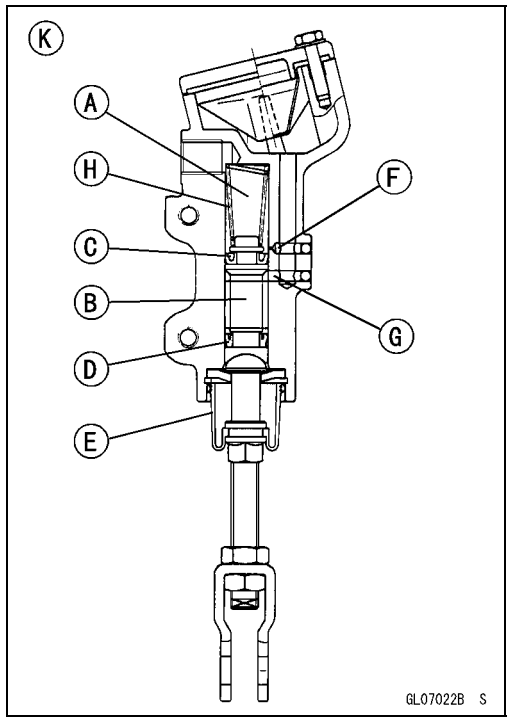
★If the small relief port becomes plugged, the brake pads will drag on the disc. Blow the ports clean with compressed air.

- Check the piston return springs [H] for any damage.

★If a spring is damaged, replace it.

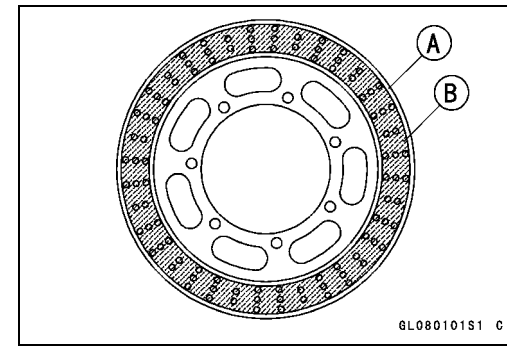
[K] Rear Master Cylinder.





Brake Disk

Brake Disc Inspection



- Visually inspect the disc [A].

★If it is scratched or damaged, replace the disc.

- Measure the thickness of each disc at the point [B] where it has worn the most.

★Replace the disc if it has worn past the service limit.

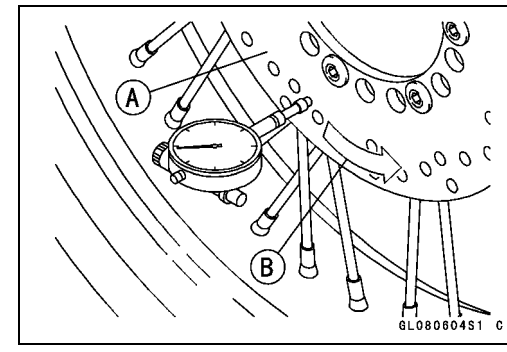
Thickness

Standard:

Front	**2.85 ~ 3.15 mm 2.85 ~ 3.15 mm**
Rear	**3.85 ~ 4.15 mm (0.152 ~ 0.163 in.)**

Service Limit:

Front	**2.5 mm (0.10 in.)**
Rear	**3.5 mm (0.14 in.)**



- Place a jack under the motorcycle so that the front/rear wheel is raised off the ground.

Special Tool - Jack: 57001-1238

- Set up a dial gauge against the disc [A] as illustrated.

○For the front disc, turn the handlebar fully to one side.

- Measure the disc runout while rotating the wheel slowly [B].

★If the runout exceeds the service limit, replace the disc.

Runout

Standard: Not more than 0.25 mm (0.098 in.)

Service Limit: 0.3 mm (0.01 in.)

Brake Hose

Brake Hose Removal/Installation

CAUTION
fluid quickly ruins painted or plastic surfaces; any spilled fluid should be completely wiped up immediately with watered cloth.

- When removing the brake hose, take care not to spill the brake fluid on the painted or plastic parts.
- When removing the brake hose, temporarily secure the end of the brake hose to some high place to keep fluid loss to a minimum.
- There are washers on each side of the brake hose fitting. Replace them with new ones when installing.
- When installing the hoses, avoid sharp bending, kinking, flattening or twisting, and route the hoses according to the Cable, Harness, Hose Routing section in the General Information chapter.
- Torque the banjo bolts at the hose fittings.

Torque - Brake Hose Banjo Bolts: 25 N·m (2.5 kgf·m, 18.5 ft·lb)

- Bleed the brake line after installing the brake hose (see Bleeding the Brake Line).

Brake Hose Inspection

- Refer to the Brake Hose and Connection Check in the Periodic Maintenance chapter.

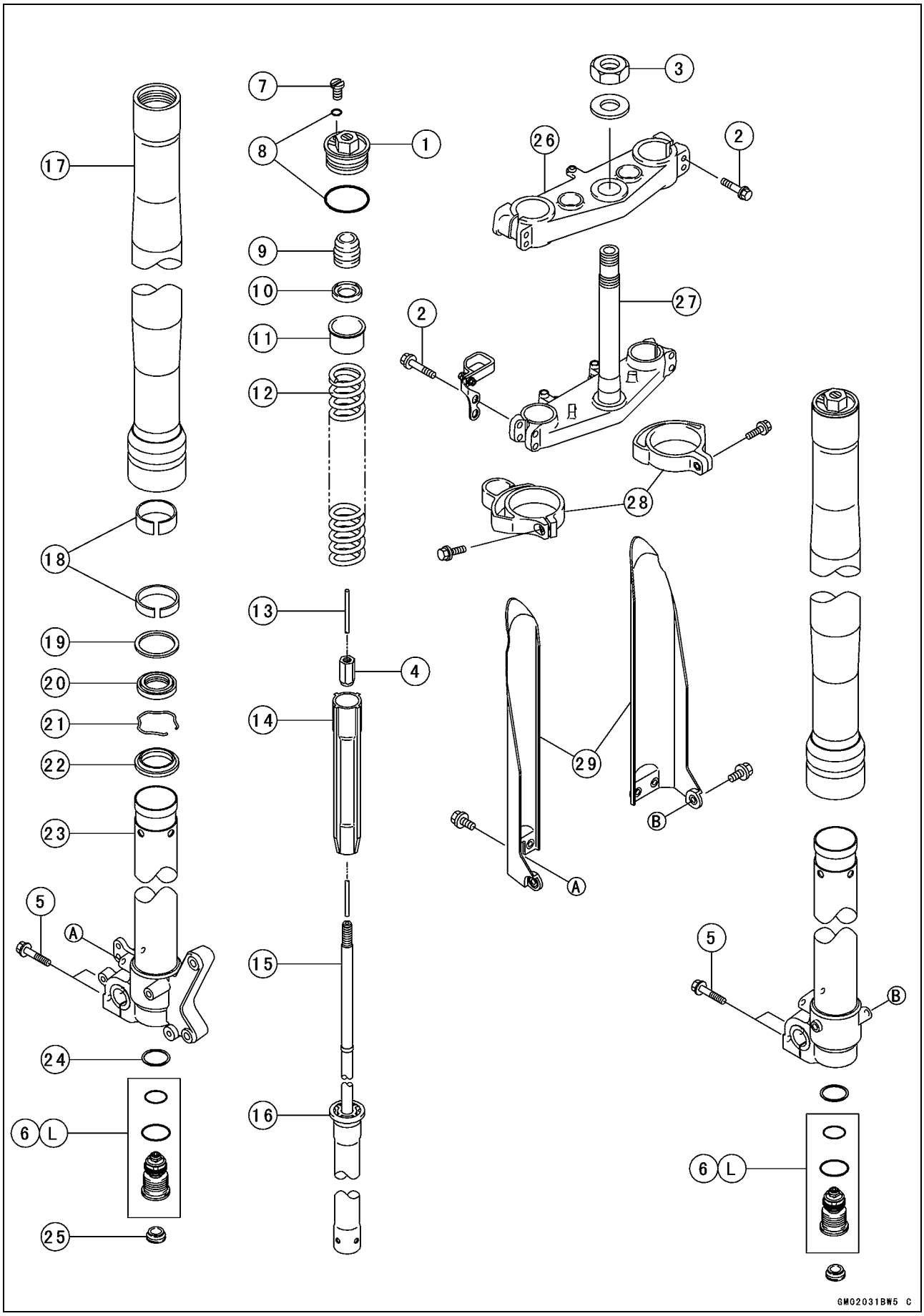
Suspension

Table of Contents

Exploded View 12-2
Specifications 12-10
Special Tools 12-14
Front Fork 12-16
  Air Pressure 12-16
  Rebound Damping Adjustment 12-16
  Compression Damping Adjustment 12-17
  Fork Oil Level Adjustment (Simplify) 12-17
  Oil Change/Oil Level Adjustment (each fork leg) 12-21
  Front Fork Removal 12-21
  Front Fork Installation 12-21
  Front Fork Disassembly (each fork leg) 12-22
  Front Fork Assembly 12-26
  Inner Tube Inspection 12-29
  Guide Bush Inspection 12-30
  Dust Seal/Oil Seal Inspection 12-30
  Spring Tension 12-30
Rear Suspension (Uni-Trak) 12-31
  Rear Shock Absorber: 12-31
  Rebound Damping Adjustment 12-31
  Compression Damping Adjustment 12-32
  Spring Preload Adjustment 12-32
  Spring Tension 12-33
  Rear Shock Absorber Removal ... 12-33
  Rear Shock Absorber Installation 12-34
  Spring Replacement 12-34
  Rear Shock Absorber Disassembly (Oil Change) 12-35
  Rear Shock Absorber Assembly .. 12-37
  Rear Shock Absorber Scrapping . 12-40
Swingarm 12-41
  Swingarm Removal 12-41
  Swingarm Installation 12-41
  Swingarm Bearing Removal 12-42
  Swingarm Bearing Installation 12-42
  Drive Chain Guide, Chain Slipper Wear 12-42
Tie-Rod, Rocker Arm 12-43
  Tie-Rod Removal 12-43
  Tie-Rod Installation 12-43
  Rocker Arm Removal 12-43
  Rocker Arm Installation 12-44
  Tie-Rod and Rocker Arm Bearing Removal 12-44
  Tie-Rod and Rocker Arm Bearing Installation 12-45
  Needle Bearing Inspection 12-45
Uni-Trak Maintenance 12-46
  Uni-Trak Linkage Inspection 12-46
  Rocker Arm Sleeve Wear 12-46
  Rocker Arm Mounting Bolt Bend .. 12-46

Exploded View

KX125/250-M1:



Exploded View

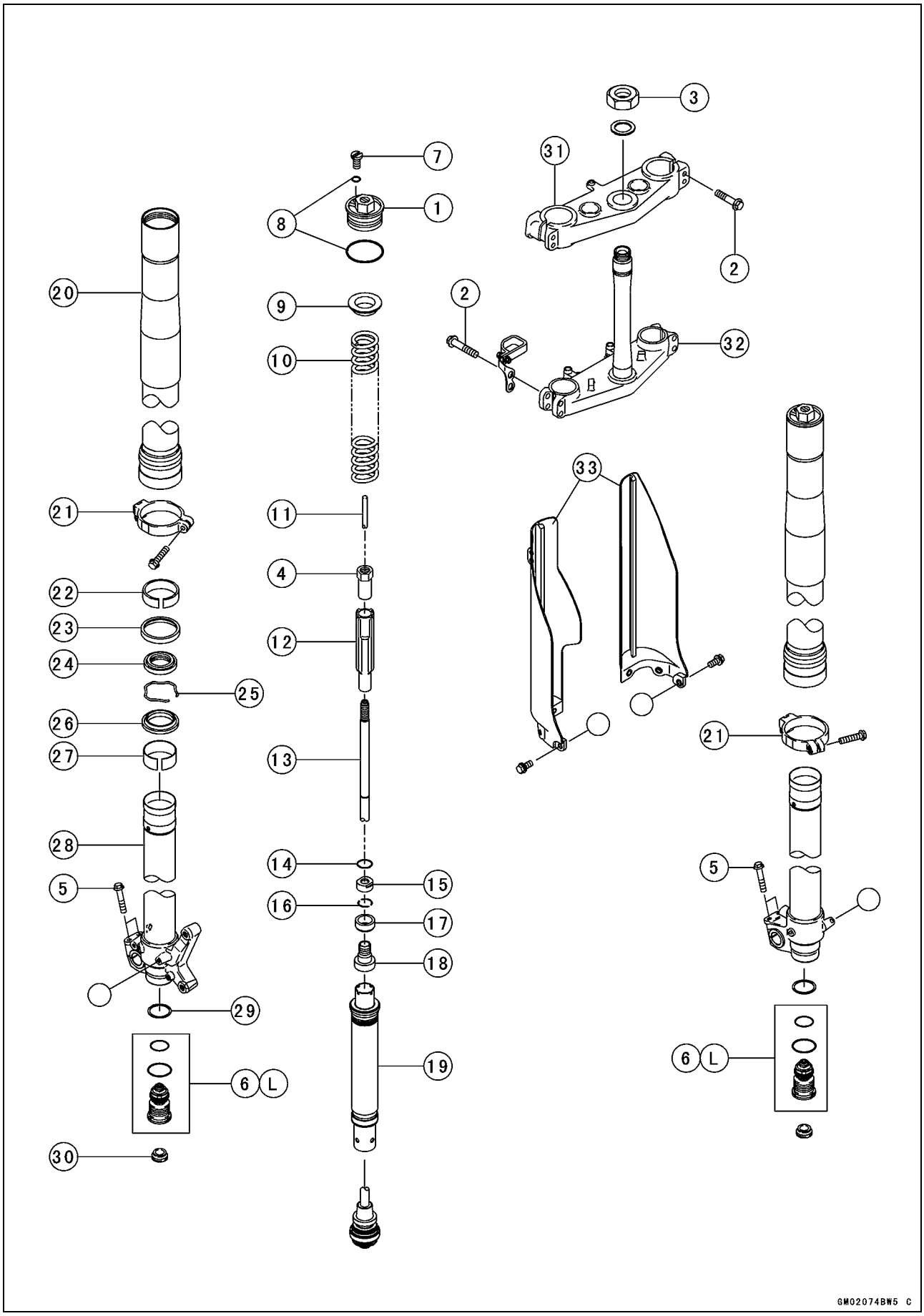
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Front Fork Top Plug	29	3.0	22	
2	Front Fork Clamp Bolts (Upper, Lower)	20	2.0	14.5	
3	Steering Stem Head Nut	78	8.0	58	
4	Push Rod Nut	28	2.85	20.6	
5	Front Axle Clump Bolts	20	2.0	14.5	
6	Front Fork Cylinder Valve Assembly	54	5.5	40	L

7. Screw
8. O-Ring
9. Damper
10. Washer
11. Spring Seat
12. Spring
13. Rebound Damping Adjuster Rod
14. Spring Guide
15. Push Rod
16. Fork Cylinder
17. Outer Tube
18. Guide Bush
19. Washer
20. Oil Seal
21. Retaining Ring
22. Dust Seal
23. Inner Tube
24. Gasket
25. Cap
26. Steering Stem Head
27. Steering Stem
28. Fork Guide
29. Fork Protector

L: Apply a non-permanent locking agent to the threads.

Exploded View

KX125/250-M2~



Exploded View

No.	Fastener	Torque			Remarks
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1	Front Fork Top Plug	29	3.0	22	
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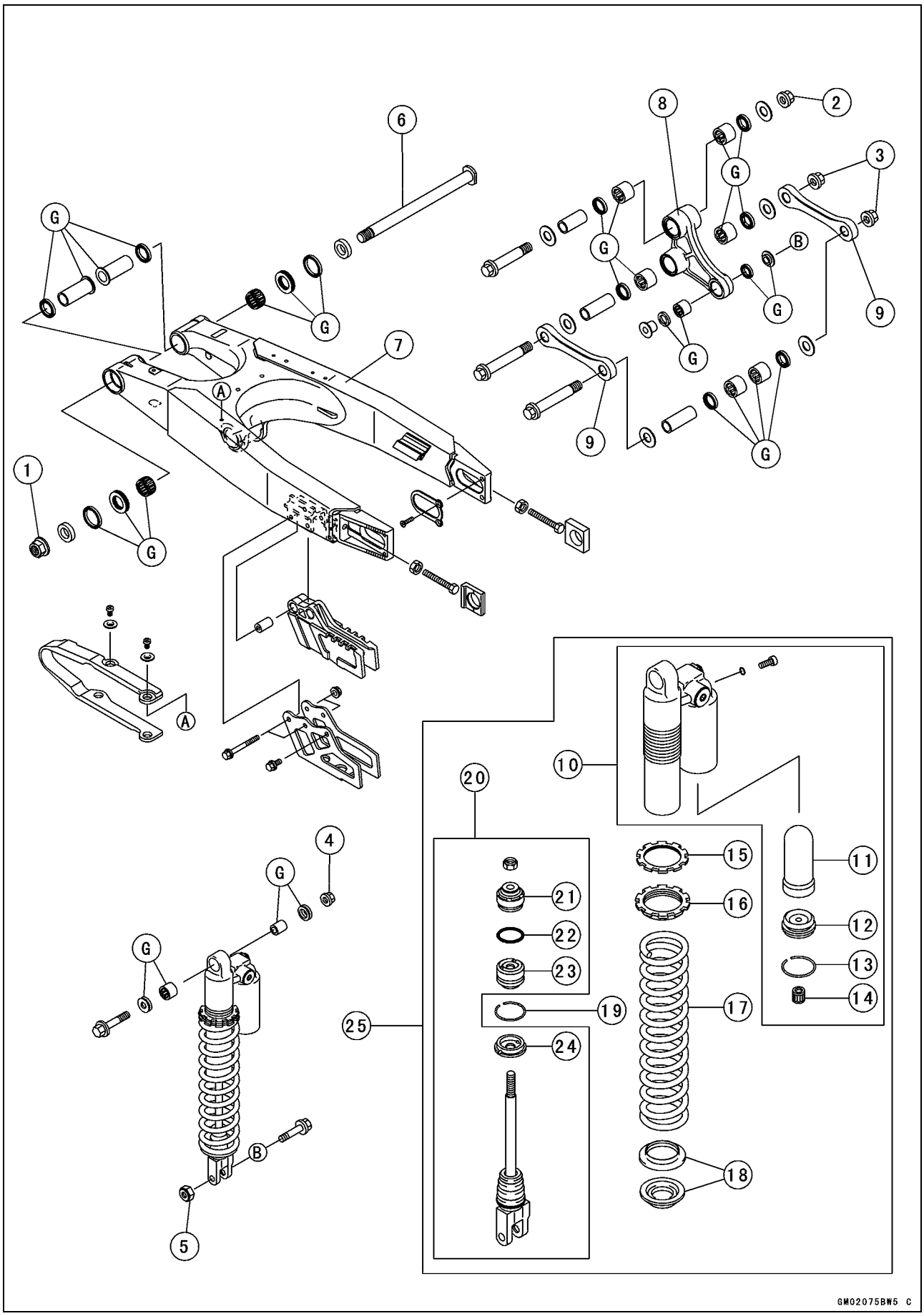
7. Screw
8. O-ring
9. Damper
10. Washer
11. Spring Seat
12. Spring
13. Rebound Damping Adjuster Rod
14. Spring Guide
15. Push Rod
16. Fork Cylinder
17. Outer Tube
18. Guide Bush
19. Washer
20. Oil Seal
21. Retaining Ring
22. Dust Seal
23. Inner Tube
24. Gasket
25. Cap
26. Steering Stem Head
27. Steering Stem
28. Fork Guide
29. Fork Protector

L: Apply a non-permanent locking agent to the threads.

Exploded View

KX125/250-M1:



Exploded View

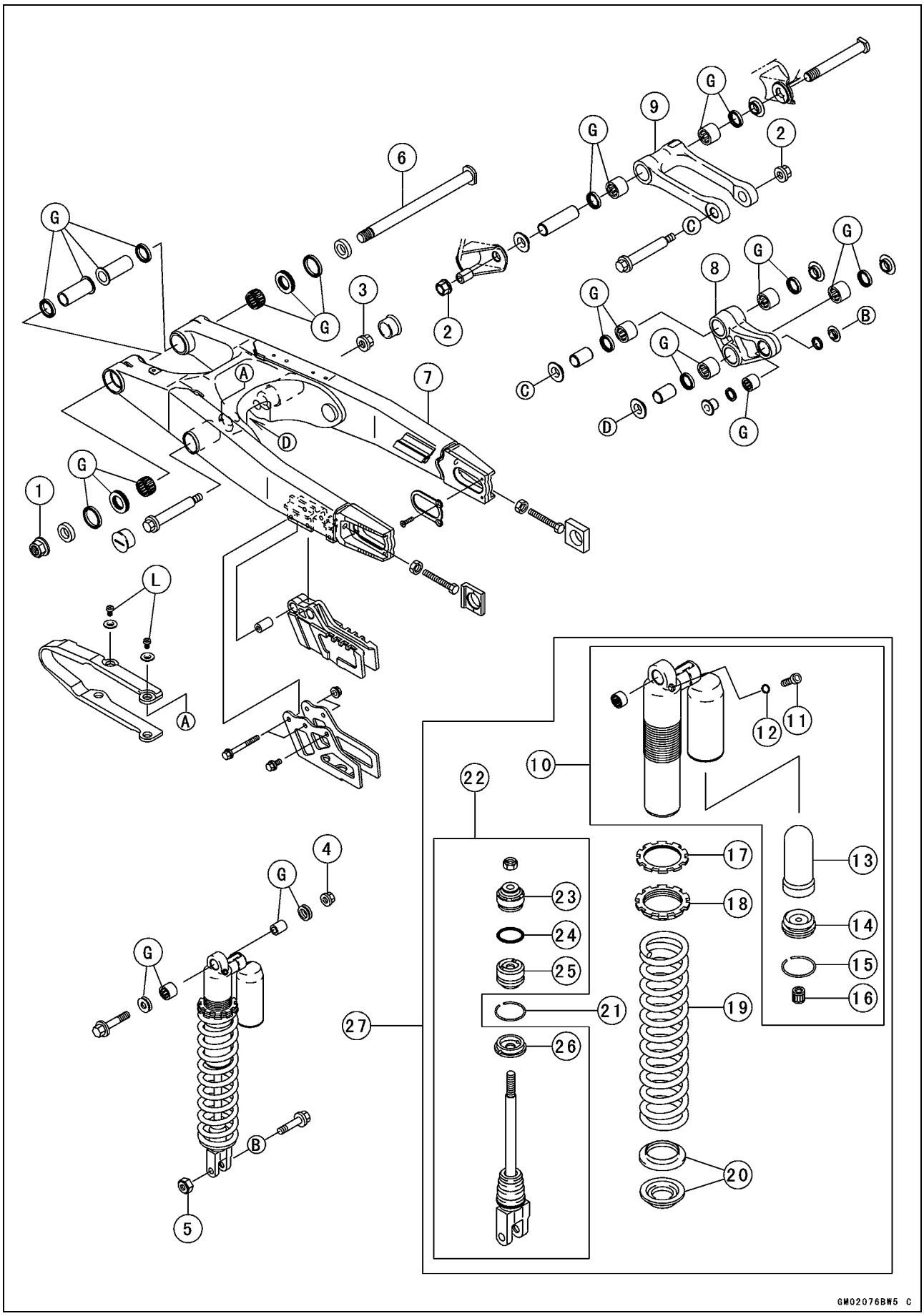
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Swingarm Pivot Shaft Nut	98	10.0	72	
2	Rocker Arm Pivot Nut	83	8.5	61	
3	Tie-Rod Mounting Nut (Front, Rear)	83	8.5	61	
4	Rear Shock Absorber Mounting Nut (Upper)	39	4.0	29	
5	Rear Shock Absorber Mounting Nut (Lower)	34	3.5	25	

6. Pivot Shaft
7. Swingarm
8. Rocker Arm
9. Tie-Rod
10. Rear Shock Absorber Cylinder
11. Bladder
12. Cap
13. Circlip
14. Valve Cap
15. Locknut
16. Adjusting Nut
17. Spring
18. Spring Guide
19. Circlip
20. Piston Rod Assembly
21. Piston
22. O-ring
23. Oil Seal
24. Stopper
25. Rear Shock Absorber

G: Apply grease.

Exploded View

KX125/250-M2~



Exploded View

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Swingarm Pivot Shaft Nut	98	10.0	72	
2	Tie-Rod Mounting Nut (Front, Rear)	83	8.5	61	
3	Rocker Arm Pivot Nut	83	8.5	61	
4	Rear Shock Absorber Mounting Nut (Upper)	39	4.0	29	
5	Rear Shock Absorber Mounting Nut (Lower)	34	3.5	25	

6. Pivot Shaft
7. Swingarm
8. Rocker Arm
9. Tie-Rod
10. Rear Shock Absorber Cylinder
11. Air Bleeder Bolt
12. O-ring
13. Bladder
14. Cap
15. Circlip
16. Valve Cap
17. Locknut
18. Adjusting Nut
19. Spring
20. Spring Guide
21. Circlip
22. Piston Rod Assembly
23. Piston
24. O-ring
25. Oil Seal
26. Stopper
27. Rear Shock Absorber

G: Apply grease.
L: Apply a non-permanent locking agent to the threads.

Specifications

KX125/250-M1:

Item	Standard	Service Limit
Front Fork		
Air Pressure	Atmospheric pressure	– – –
Rebound Damping Adjustment		(Adjustable Range)
(from the seated position adjuster turned fully clockwise)	13 clicks counterclockwise	16 clicks
Compression Damping Adjustment		
(from the seated position adjuster turned fully clockwise)		(Adjustable Range)
KX125	14 clicks counterclockwise	16 clicks
KX250	13 clicks counterclockwise	
Oil Viscosity	KAYABA 01 or SAE 5W-20	– – –
Oil Capacity		
KX125	652 ±4 mL (22.04 ±0.14 US oz.)	– – –
KX250	664 ±4 mL (22.45 ±0.14 US oz.)	
Oil Level (fully compressed, spring removed)		(Adjustable Range)
KX125	135 ±2 mm (5.31 ±0.08 in.) (from top of outer tube)	100 ~ 145 mm (3.94 ~ 5.71 in.)
KX250	125 ±2 mm (4.92 ±0.08 in.) (from top of outer tube)	
Fork Spring Free Length	460 mm (18.11 in.)	450 mm (17.72 in.)
Rear Suspension (Uni-Trak)		
Rear Shock Absorber:		
Rebound Damping Adjustment		
(from the seated position adjuster fully clockwise) Turned		(Adjustable Range)
KX125	12 clicks counterclockwise	16 clicks
KX250	10 clicks counterclockwise	
Spring Preload Adjustment		
(Adjusting nut position from the center of the mounting hole upper)		(Adjustable Range)
KX125	112 mm (4.41 in.)	109 ~ 127.5 mm (4.29 ~ 5.02 in.)
KX250	117 mm (4.61 in.)	109 ~ 129.5 mm (4.29 ~ 5.10 in.)
Rear Shock Spring Free Length	260 mm (10.24 in.)	255 mm (10.04 in.)
Gas Reservoir:		
Compression Damping Adjustment		
(from the seated position adjuster turned fully clockwise)		(Adjustable Range)
KX125	13 clicks counterclockwise	16 clicks
KX250	12 clicks counterclockwise	
Gas Pressure	980 kPa (10 kgf/cm², 142 psi)	– – –

Specifications

Item	Standard	Service Limit
Tie-Rod, Rocker Arm:		
Sleeve Outside Diameter:		
Large	19.987 ~ 20.000 mm (0.7869 ~ 0.7874 in.)	19.85 mm (0.781 in.)
Small	15.987 ~ 16.000 mm (0.6294 ~ 0.6299 in.)	15.85 mm (0.624 in.)
Rocker Arm Mounting Bolt Runout	under 0.1 mm (0.004 in.)	0.2 mm (0.008 in.)

Specifications

KX125/250-M2 ~ :

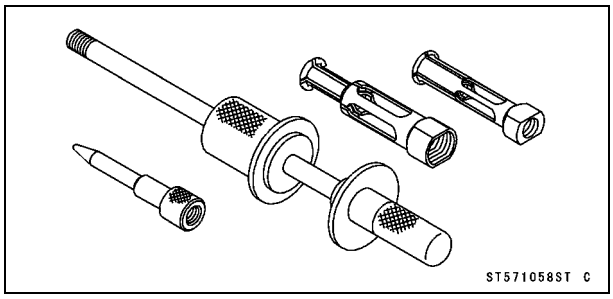
Item	Standard	Service Limit
Front Fork		
Air Pressure	Atmospheric pressure	– – –
Rebound Damping Adjustment		(Adjustable Range)
(from the seated position adjuster turned fully clockwise)	14 clicks counterclockwise	16 clicks
Compression Damping Adjustment		
(from the seated position adjuster turned fully clockwise)		(Adjustable Range)
KX125	10 clicks counterclockwise	16 clicks
KX250	10 clicks counterclockwise	
Oil Viscosity	KAYABA 01 or SAE 0W	– – –
Oil Capacity		
KX125	565 ±4 mL (19.10 ±0.14 US oz.)	– – –
KX250	578 ±4 mL (19.54 ±0.14 US oz.)	
Oil Level (fully compressed, spring removed)		(Adjustable Range)
KX125	105 ±2 mm (4.13 ±0.08 in.) (from top of outer tube)	70 ~ 120 mm (2.76 ~ 4.72 in.)
KX250	88 ±2 mm (3.46 ±0.08 in.) (from top of outer tube)	
Fork Spring Free Length	460 mm (18.11 in.)	450 mm (17.72 in.)
Rear Suspension (Uni-Trak)		
Rear Shock Absorber:		
Rebound Damping Adjustment		
(from the seated position adjuster fully clockwise) Turned		(Adjustable Range)
KX125	11 clicks counterclockwise	16 clicks
KX250	10 clicks counterclockwise	
Spring Preload Adjustment		
(Adjusting nut position from the center of the mounting hole upper)		(Adjustable Range)
KX125	111 mm (4.37 in.)	109 ~ 127.5 mm (4.29 ~ 5.02 in.)
KX250	112 mm (4.41 in.)	109 ~ 129.5 mm (4.29 ~ 5.10 in.)
Rear Shock Spring Free Length	260 mm (10.24 in.)	255 mm (10.04 in.)
Gas Reservoir:		
Compression Damping Adjustment		
(from the seated position adjuster turned fully clockwise)		(Adjustable Range)
KX125	13 clicks counterclockwise	16 clicks
KX250	10 clicks counterclockwise	
Gas Pressure	980 kPa (10 kgf/cm², 142 psi)	– – –

Specifications

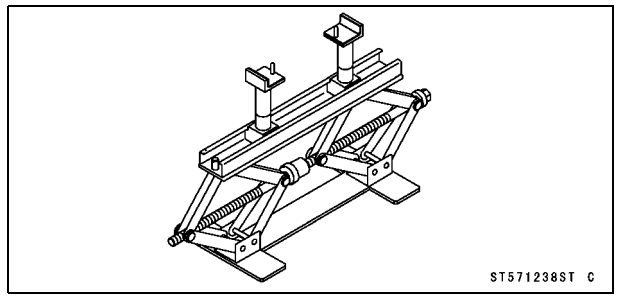
Item	Standard	Service Limit
Tie-Rod, Rocker Arm		
Sleeve Outside Diameter:		
Large	19.987 ~ 20.000 mm (0.7869 ~ 0.7874 in.)	19.85 mm (0.781 in.)
Small	15.987 ~ 16.000 mm (0.6294 ~ 0.6299 in.)	15.85 mm (0.624 in.)
Rocker Arm Mounting Bolt Runout	under 0.1 mm (0.004 in.)	0.2 mm (0.008 in.)

Special Tools

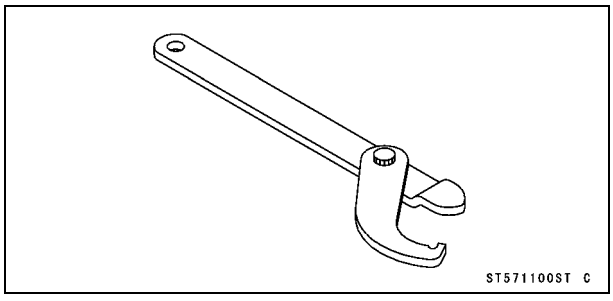
Oil Seal & Bearing Remover:
57001-1058



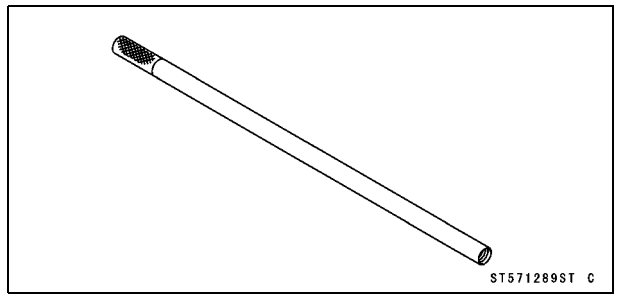
Jack:
57001-1238



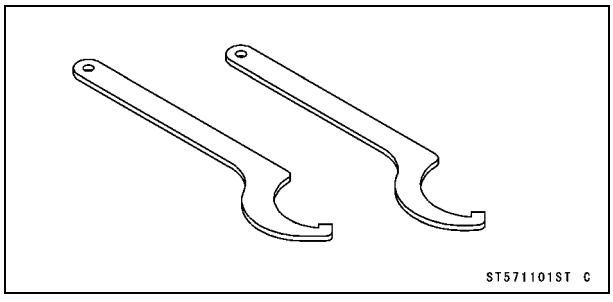
Steering Stem Nut Wrench:
57001-1100



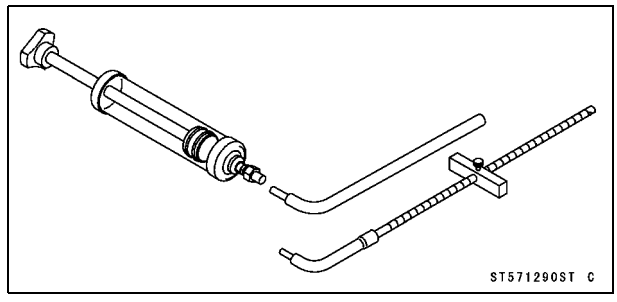
Fork Piston Rod Puller, M12 × 1.25:
57001-1289



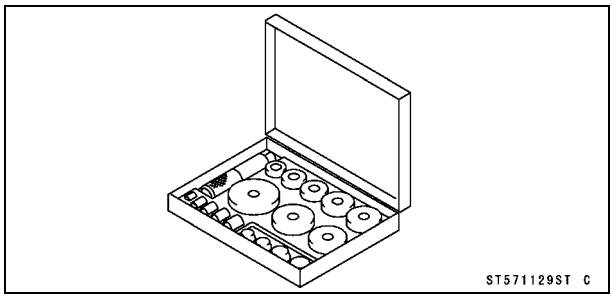
Hook Wrench R37.5, R42:
57001-1101



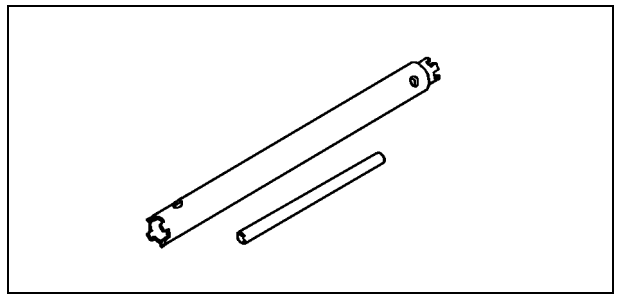
Fork Oil Level Gauge:
57001-1290



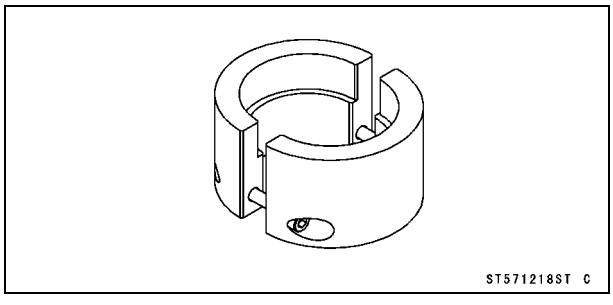
Bearing Driver Set:
57001-1129



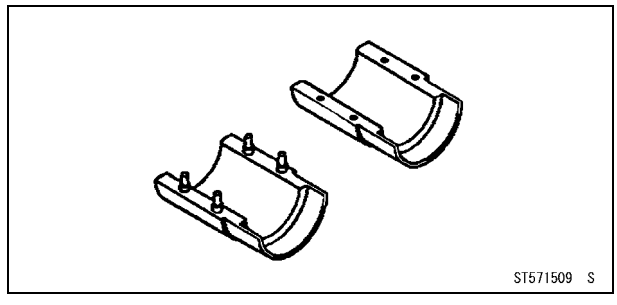
Fork Cylinder Holder:
57001-1413



Fork Outer Tube Weight:
57001-1218

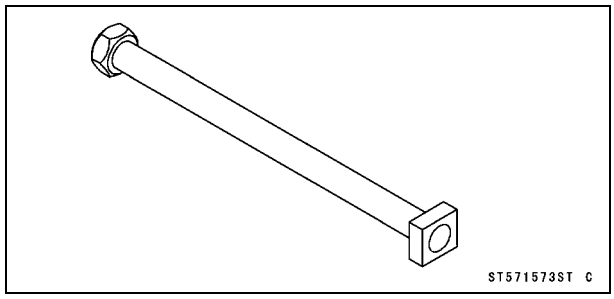


Fork Oil Seal Driver, ϕ48:
57001-1509

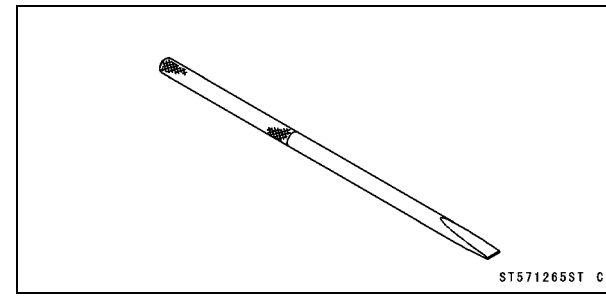


Special Tools

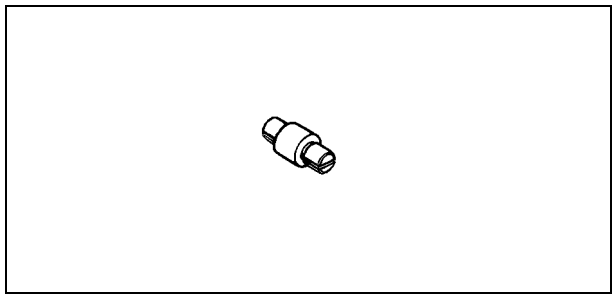
Fork Cylinder Holder:
57001-1573



Bearing Remover Shaft, ϕ9:
57001-1265



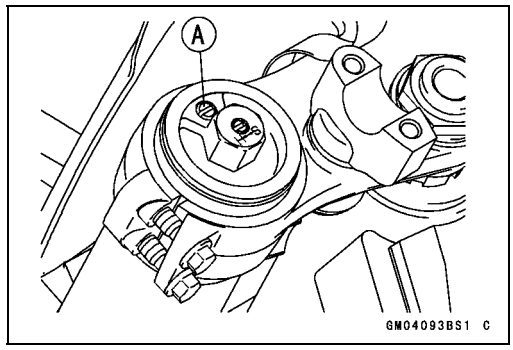
Bearing Remover Head, ϕ15 × ϕ17:
57001-1267



Front Fork

Air Pressure

The standard air pressure in the front fork legs is atmospheric pressure. Air pressure in the fork legs increase with normal use, so the fork action stiffens during operation. Release air pressure form the fork legs prior to each race through the pressure relief screw located in each front fork cap.



- Place the jack under the frame so that the front wheel off the ground.

Special Tool - Jack: 57001-1238

- Remove the screws [A] at the top of the front fork top plugs to let the air pressure equalize.

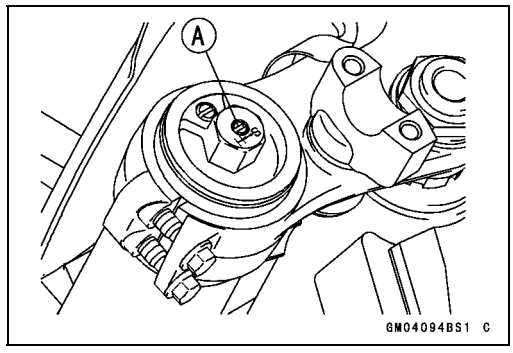
NOTE

○*Do not use the side stand when adjusting the air pressure.*

○*Adjust the air pressure when the front forks are cold.*

- Check the O-ring of the screw. Replace the O-ring with a new one if damage.
- Install the screw.

Rebound Damping Adjustment



- Place the jack under the frame so that the front wheel off the ground.

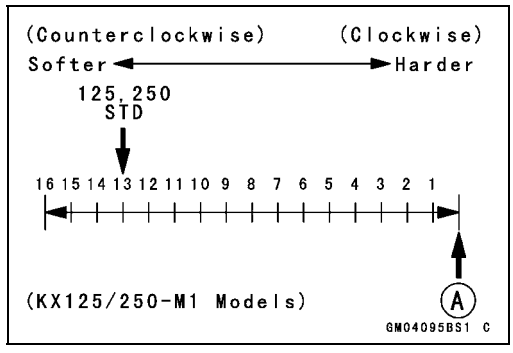
Special Tool - Jack: 57001-1238

- To adjust rebound damping, turn the adjuster [A] on the front fork top plugs with the blade of a screwdriver until you feel a click. Adjust the rebound damping to suit you preference under special condition.

NOTE

○*The left and right fork legs must have the same shock damping.*

Seated positions: adjuster turned fully clockwise [A].



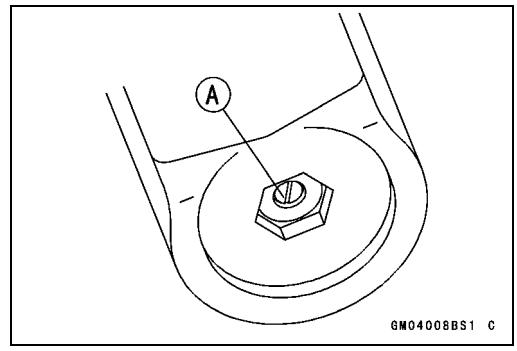
Rebound Damping Adjuster Setting

Standard:

KX125-M1:	**13 clicks**
KX125-M2~:	**14 clicks**
KX250-M1:	**13 clicks**
KX250-M2~:	**14 clicks**

Front Fork

Compression Damping Adjustment



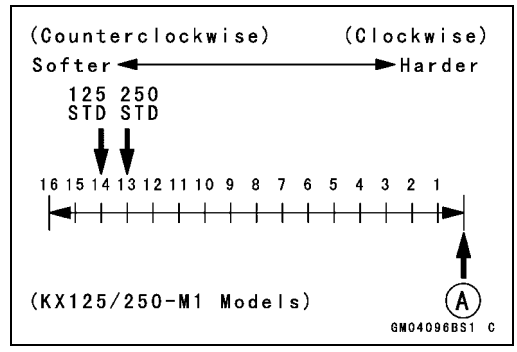
- Place the jack under the frame so that the front wheel off the ground.

Special Tool - Jack: 57001-1238

- Clean the bottom of the fork tubes.
- Remove the caps on the bottom of the fork tubes.
- To adjust compression damping, turn the adjuster [A] on the front fork cylinder valve with the blade of a screwdriver until you feel a click. Adjust the compression damping to suit your preference under special condition.

NOTE

○*The left and right fork legs must have the same shock damping.*



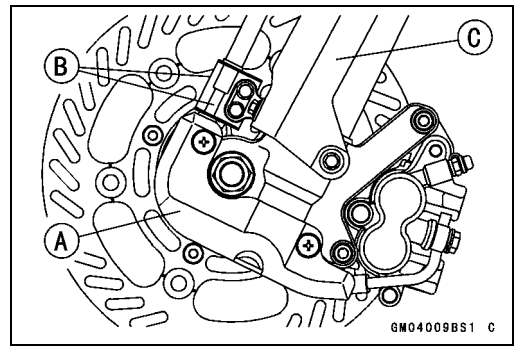
Seated positions adjuster turned fully clockwise [A].

- Put the caps into the bottom of the fork tubes.

Compression Damping Adjuster Setting
Standard

KX125-M1:	**14 clicks**
KX125-M2~:	**10 clicks**
KX250-M1:	**13 clicks**
KX250-M2~:	**10 clicks**

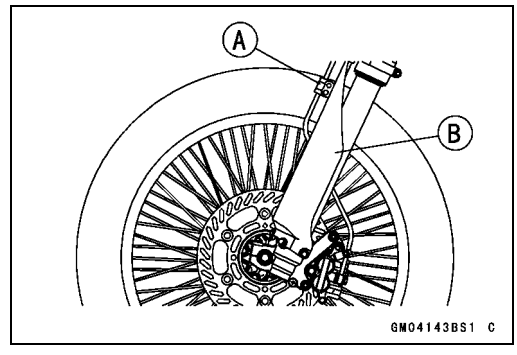
Fork Oil Level Adjustment (Simplify)



- Raise the front wheel off the ground using a jack.

Special Tool - Jack: 57001-1238

- Remove:
  Front Fender
  Brake Hose Guard [A]
  Brake Hose Clamps [B]
  Fork Protectors [C]
  Number Plate
  Handlebar



- For KX125/250-M2 model~; note the following.

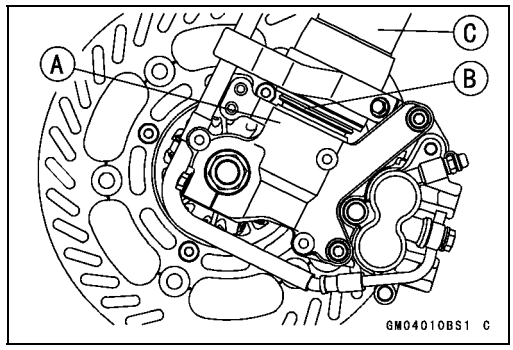
○Raise the front wheel off the ground using a jack.

Special Tool - Jack: 57001-1238

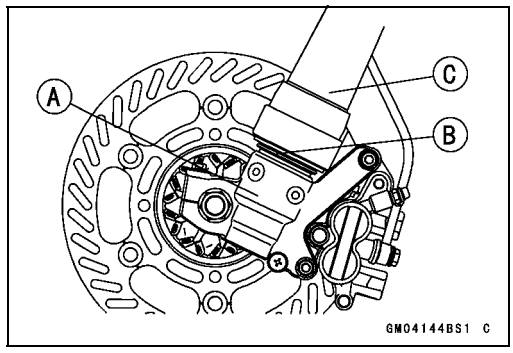
○Remove:
  Front Fender
  Brake Hose Clamps [A]
  Fork Protectors [B] and Protector Guides
  Number Plate
  Handlebar

Front Fork

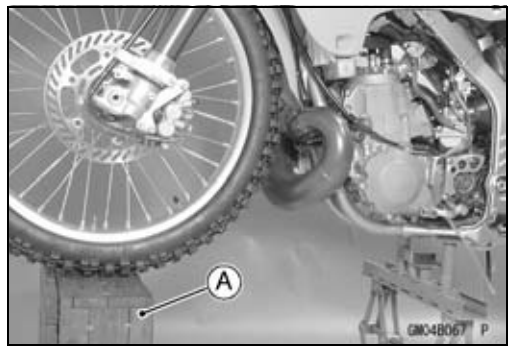
- Loosen the upper fork clamp bolts.
- Disassemble the front fork top plugs from the outer tube.
- Slowly compress the front fork fully by pushing up the inner tubes [A] until they are stepped portion contacts the dust seals [B] on the lower end of the outer tubes [C].



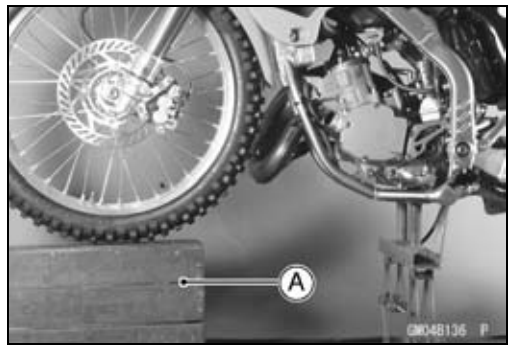
- For KX125/250-M2 model~; as shown in the figure.



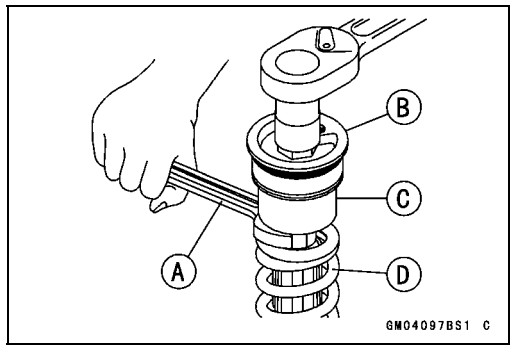
- Place a stand or other suitable support [A] under the front wheel.



- For KX125/250-M2 model~; as shown in the figure.



- While holding the push rod nut with a 17 mm (0.67 in.) wrench [A], loosen the front fork top plug [B] from the top of the push rod.
- Remove the fork top plug with the fork spring seat [C] and fork spring [D].
- Remove the other fork spring in the same way as described above.



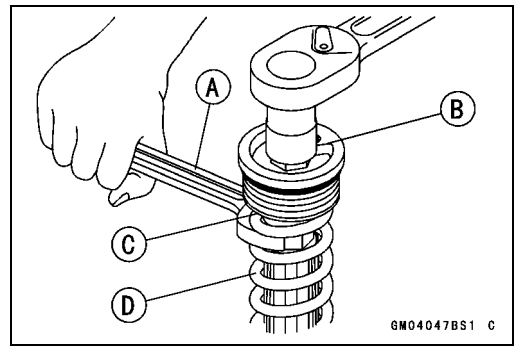
Front Fork

● For KX125/250-M2 model; note the following.

○While holding the push rod nut with a 19 mm (0.75 in.) wrench [A], loosen the front fork top plug [B] from the top of the push rod.

○Remove the fork top plug with the fork spring seat [C] and fork spring [D].

○Remove the other fork spring in the same way as described above.



● Use the oil level gauge to measure the fork oil level.

○With the fork fully compressed, put the oil level gauge [A] and the stopper [B], and adjust the distance from the top of the inner tube to oil.

Special Tool - Fork Oil Level Gauge: 57001-1290

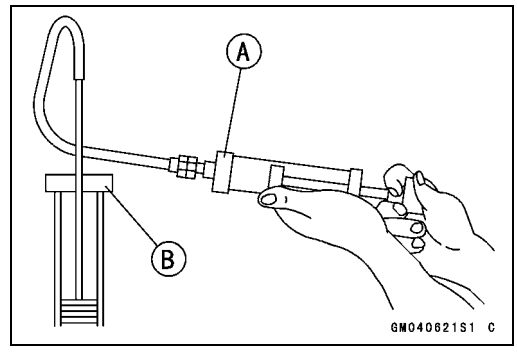
Front Fork Oil Level (fully compressed, without spring)

Standard:

KX125-M1:	**133 ~ 137 mm (5.24 ~ 5.39 in.)**
KX125-M2~:	**103 ~ 107 mm (4.00 ~ 4.21 in.)**
KX250-M1:	**123 ~ 127 mm (4.84 ~ 5.00 in.)**
KX250-M2~:	**86 ~ 90 mm (3.39 ~ 3.54 in.)**

Adjustable Range:

KX125/250-M1:	**100 ~ 145 mm (3.94 ~ 5.71 in.)**
KX125/250 -M2~:	**70 ~ 120 mm (2.76 ~ 4.72 in.)**



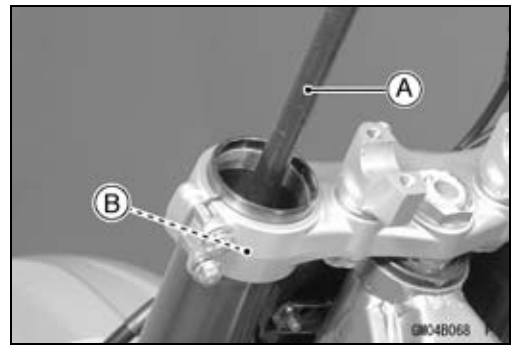
★If no oil is drawn out, there is insufficient oil in the fork tube. Pour in enough oil, then pump out the excess oil.

Recommended Fork Oil: KAYABA 01 or SAE 5W-20

● Install the push rod puller [A] onto the push rod [B].

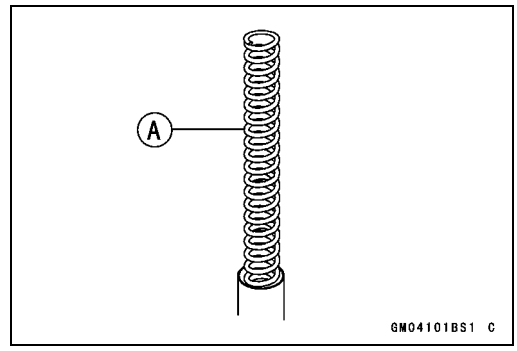
● Slowly pull up the push rod.

● Let the fork oil overflow through the hole in the push rod until it stops.



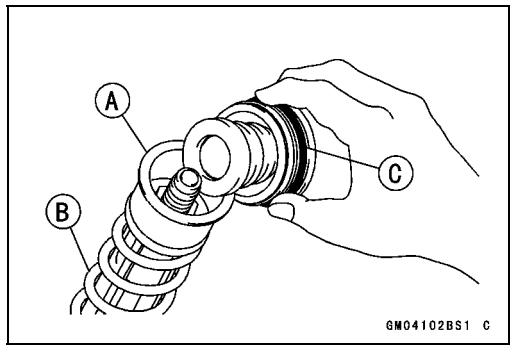
● Insert the fork spring [A] into the fork tube.

● Remove the push rod puller.

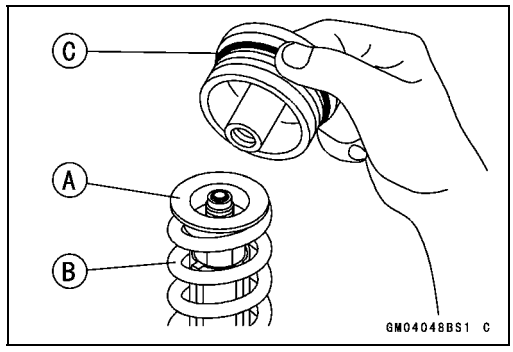


Front Fork

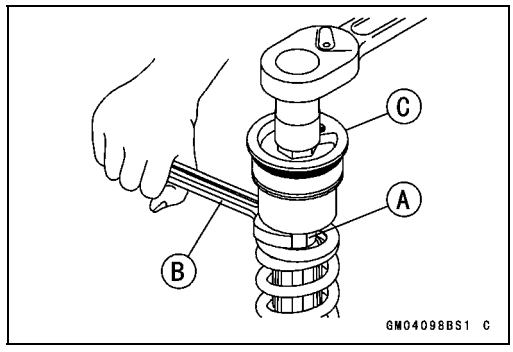
- Install the fork spring seat [A] on the fork spring [B].
- Check both top plug O-ring [C] for damage and replace them if necessary.



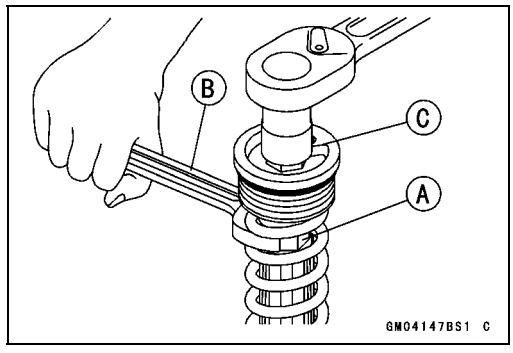
- For KX125/250-M2 model~; as shown in the figure.



- While holding the push rod nut [A] with a 17 mm (0.67 in.) wrench [B], tighten the top plug [C] against the push rod.



- For KX125/250-M2 model~; while holding the push rod nut [A] with a 19 mm (0.75 in.) wrench [B], tighten the top plug [C] against the push rod.



- Tighten the fork top plug.

Torque - Push Rod Nut: 28 N·m (2.85 kgf·m, 20.6 ft·lb)
Front Fork Top Plug: 29 N·m (3.0 kgf·m, 22 ft·lb)

- Assemble the other fork tube in the same way as described above.
- Tighten the upper fork clamp bolts.

Torque - Front Fork Upper Clamp Blots: 20 N·m (2.0 kgf·m, 14.5 ft·lb)

NOTE

○*Tighten the two clamp bolts alternately two times to ensure even tightening torque.*

- Install the parts removed.

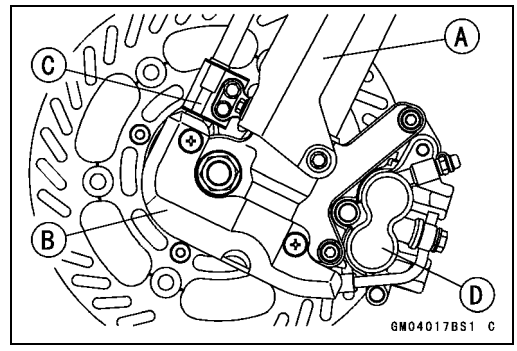
Front Fork

Oil Change/Oil Level Adjustment (each fork leg)

- Refer to the Front Fork Oil Change/Oil Level Adjustment in the Periodic Maintenance chapter.

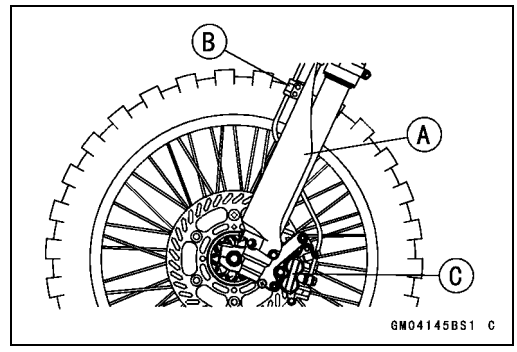
Front Fork Removal

- Remove the fork protectors [A] and hose guard [B].
- Remove the front brake hose clamps [C].
- Remove the front wheel (see Wheels/Tires chapter).
- Remove the caliper [D] from the fork leg to be removed, and rest the caliper on some kind of stand so that it doesn't dangle.

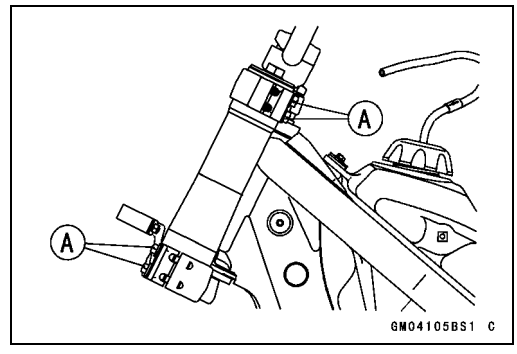


- For KX125/250-M2 model; note the following.

○Remove the fork protectors [A].
○Remove the front brake hose clamps [B].
○Remove the front wheel (see Wheels/Tires chapter).
○Remove the caliper [C] from the fork leg to be removed, and rest the caliper on some kind of stand so that it doesn't dangle.



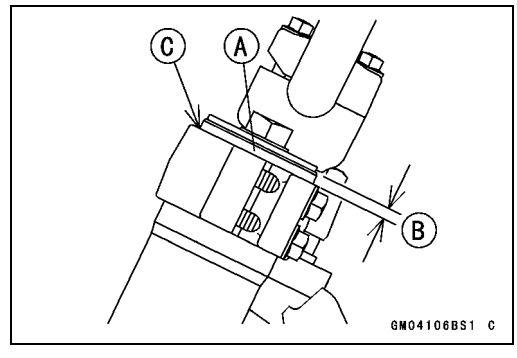
- Remove the number plate.
- Loosen the upper and lower fork clamp bolts [A].
- With a twisting motion, work the fork leg down and out.



Front Fork Installation

- If the fork leg was disassembled, check the fork oil level.
- Install the fork so that the distance [B] between the top end [A] of the outer tube and the upper surface [C] of the steering stem head is specified dimension.
  [B] = 15 mm (0.59 in.)
- Route the cables and hose according to the Cable, Harness, Hose Routing section in the Appendix chapter.
- Install the front wheel (see Wheels/Tires chapter).
- Tighten the fork clamp bolts.

Torque - Fork Clamp Bolts (Upper, Lower): 20 N·m (2.0 kgf·m, 14.5 ft·lb)



NOTE

○*Tighten the two clamp bolts alternately two times to ensure even tightening torque.*

- Tighten:

Torque - Front Caliper Mounting Bolts: 25 N·m (2.5 kgf·m, 18 ft·lb)

- Check the front brake operation after installation.

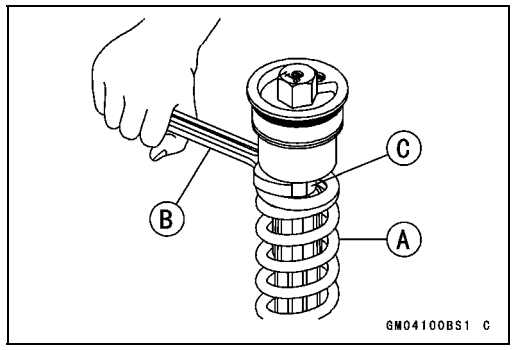
Front Fork

Front Fork Disassembly (each fork leg)

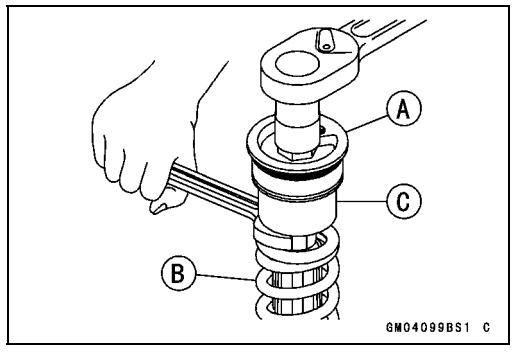
Spring Guide Removal

- Place the handlebar on one side, and loosen the each fork top plug.
- Remove the front fork.
- Hold the inner tube lower end in a vise.
- Disassemble the top plug from the outer tube.
- Push the outer tube all the way down away from the top plug and hold it there through out the following procedure.

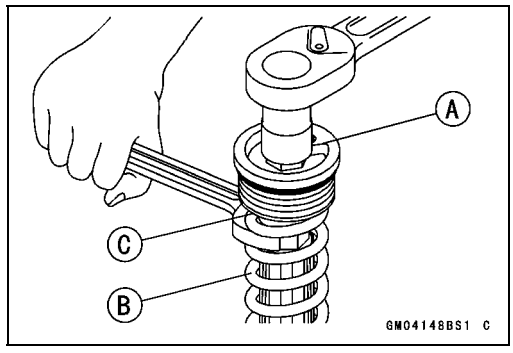
○For KX125/250-M1 model, pull the fork spring [A] away from the top plug a little and sip the spanner wrench [B] in on top of the spring seat and under the push rod nut [C].



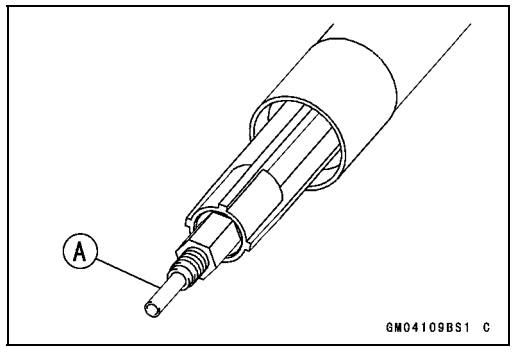
- Use wrenches on the rod nut and top plug [A] loosen the push rod nut.
- Remove the top plug from the push rod.
- Lift the fork spring [B] and its top spring seat [C] out of the outer tube.



- For KX125/250-M2 model~; as shown in the figure.



- Take the rebound damping adjuster rod [A] out of the push rod.

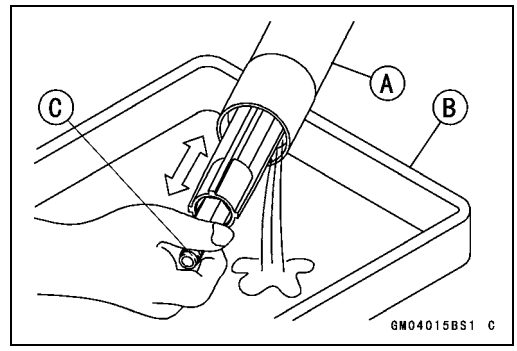


Front Fork

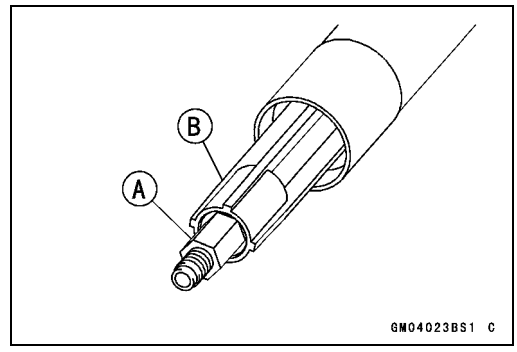
- Hold the fork tube [A] upside down over a clean container [B] and pump it to drain the oil.

NOTE

○*To discharge the fork oil, pump the push rod up [C] and down ten times.*



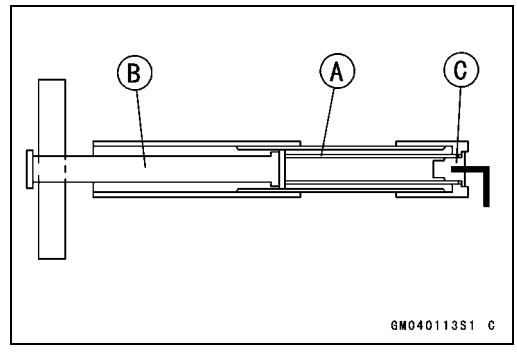
- Remove the push rod nut [A] and the spring guide [B].



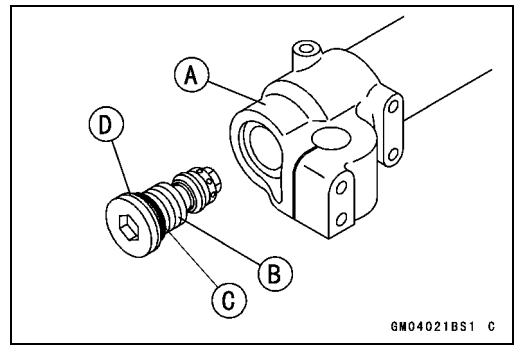
Cylinder Unit Removal (KX125/250-M1)

- Clean the bottom of the inner tube.
- Remove the cap on the bottom of the inner tube.
- Hold the front fork horizontally in a vise.
- Stop the cylinder unit [A] from turning by using the fork cylinder holder [B]. Unscrew the cylinder valve assembly [C], and take the cylinder valve assembly and gasket out of the bottom of the inner tube.

Special Tool - Fork Cylinder Holder: 57001-1413



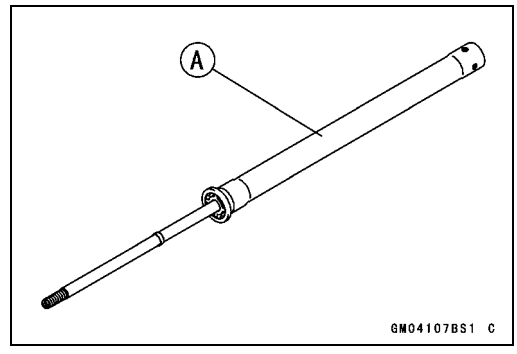
A. Inner Tube
B. Cylinder Valve Assembly
C. O-ring
D. Gasket



- Pull the cylinder unit [A] out the top of the inner tube.

NOTE

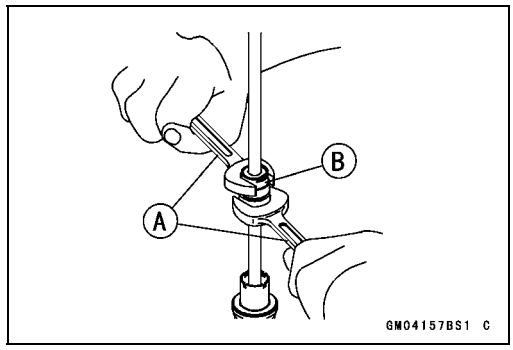
○*Do not disassembly the cylinder unit as the push rod and cylinder are consisted of as the single assembly.*



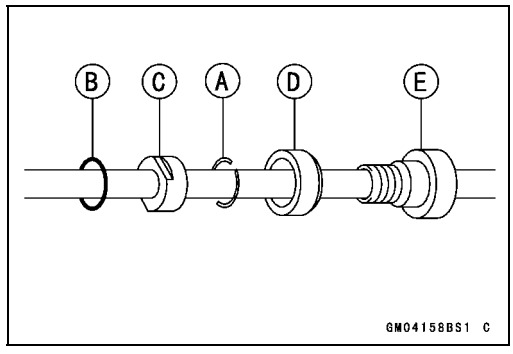
Front Fork

Cylinder Unit Removal (KX125/250-M2~)

- Using the spanner wrench [A], loosen the guide stay nut [B].

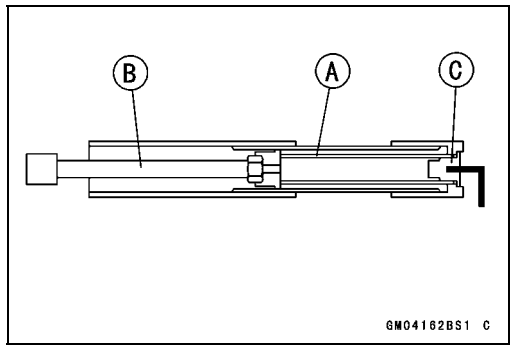


- Remove the split ring keeper [A].
- Remove the guide stay nut [B], the guide stay nut [C], the oil lock piston [D] and the piston holder [E].

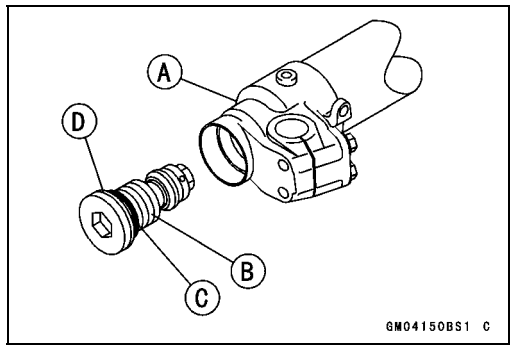


- Clean the bottom of the inner tube.
- Remove the cap on the bottom of the inner tube.
- Hold he front fork horizontally in a vise.
- Stop the cylinder unit [A] from turning by using the fork cylinder holder [B]. Unscrew the cylinder valve assembly [C], and take the cylinder valve assembly and gasket out of the bottom of the inner tube.

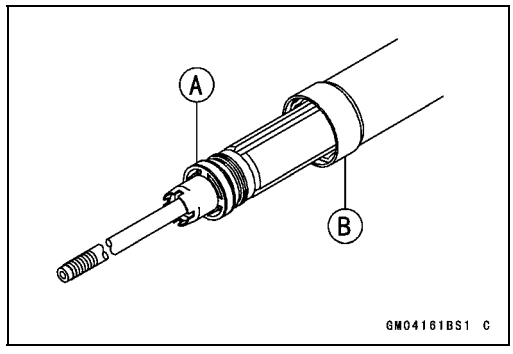
Special Tool - Fork Cylinder Holder: 57001-1573



A. Inner Tube
B. Cylinder Valve Assembly
C. O-ring
D. Gasket



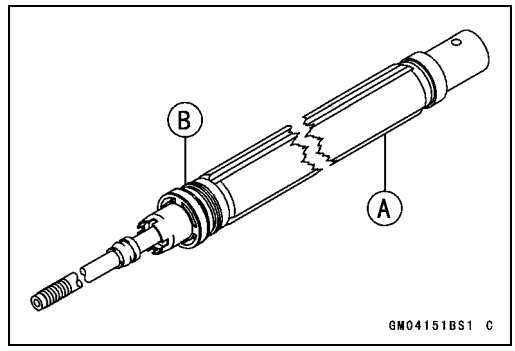
- Pull the cylinder unit [A] out the top of the inner tube [B].



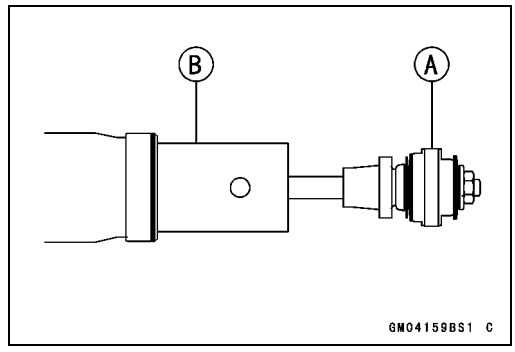
Front Fork

CAUTION

Do not disassemble the air chamber [A] by removing the spring [B] because the sealed air into the cylinder unit may be leaked.



● Pull the push rod assembly out the bottom of the cylinder unit.

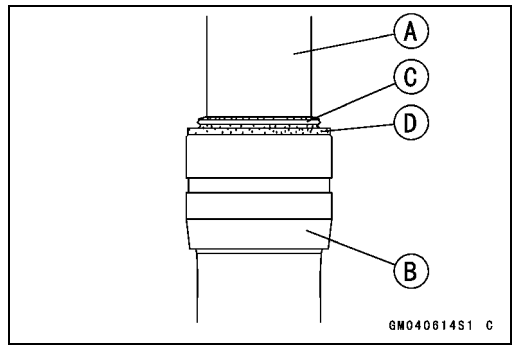


Inner Tube Removal

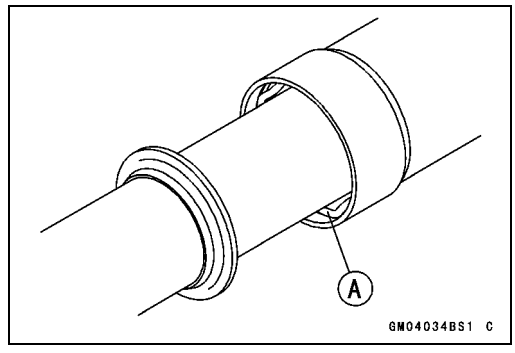
● Separate the inner tube [A] from the outer tube [B] as follows:

○Slide up the spring band [C].

○Slide up the dust seal [D].



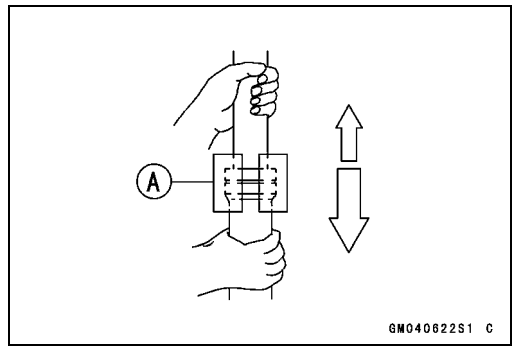
○Remove the retaining ring [A] from the outer tube.



○Grasp the outer tube and stroke the inner tube up and down several times. The shock to fork seal separates the inner tube from the outer tube.

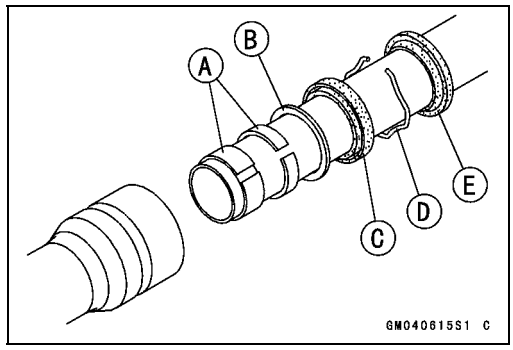
★If the tubes are tight, use a fork outer tube weight [A].

Special Tool - Fork Outer Tube Weight: 57001-1218

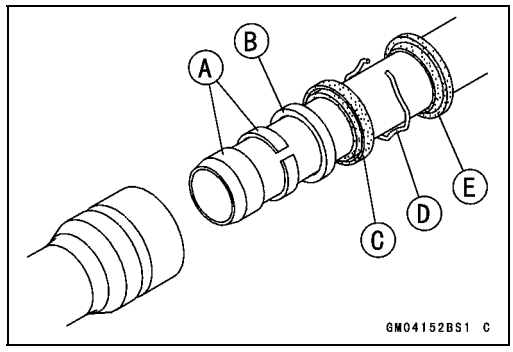


Front Fork

- Remove the guide bushes [A], washer [B], oil seal [C], retaining ring [D], and dust seal [E] from the inner tube.



- For KX125/250-M2 model~; remove the guide bushes [A], collar [B], oil seal [C], retaining ring [D], and dust seal [E] from the inner tube.



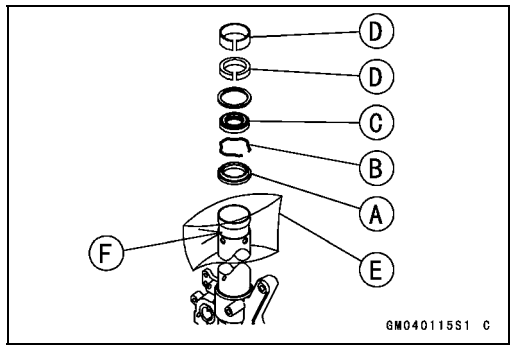
Front Fork Assembly

Inner to Outer Tube Assembly

- Replace the following with new ones:
  Dust Seal [A]
  Retaining Ring [B]
  Oil Seal [C]
  Guide Bushes [D]
- Place an oil coated plastic bag [E] over the end of the inner tube to protect the oil seals.

○The inner tube guide bush groove has a sharp edge [F] that can out the sealing lip of the seals as they are pushed down over the inner tube.

- Install in order these parts on the inner tube.



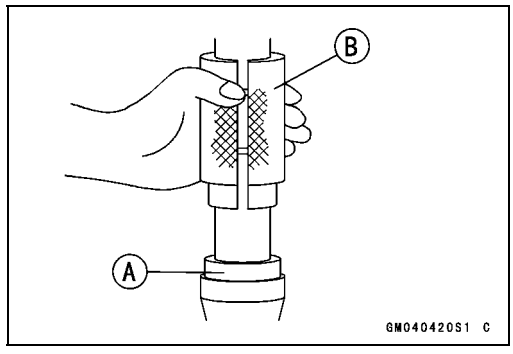
- When assembling the new outer tube guide bush [A], hold the washer against the new one, and tap the washer with the fork oil seal driver [B] until it stops.

  Special Tool - Fork Oil Seal Driver, ϕ48: 57001-1509

- After installing the washer, install the oil seal by using the fork oil seal driver.

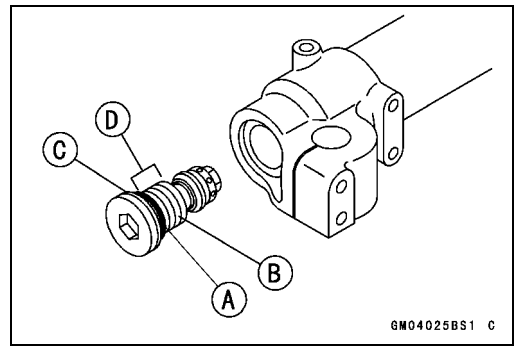
  Special Tool - Fork Oil Seal Driver, ϕ48: 57001-1509

- Install the retaining ring to the outer tube.
- Push the dust seal into the outer tube, and put the spring band on the dust seal.



Front Fork

Install Inner Cylinder (KX125/250-M1)

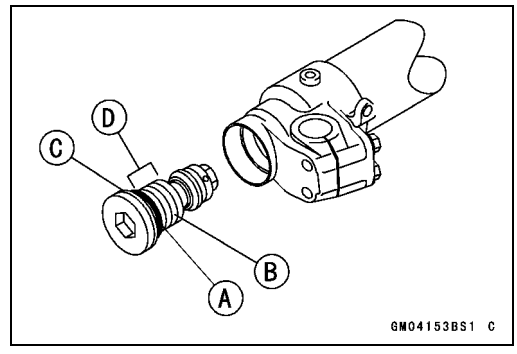


- Install the cylinder unit.
- Check the O-ring [A] on the cylinder valve assembly [B], and replace it with a new one.
- Replace the gasket [C] with a new one.
- Apply a non-permanent locking agent to the threads [D] of the cylinder valve assembly and screw the valve assembly into the bottom of the inner tube.
- Hold the cylinder unit with the fork cylinder holder, and tighten the cylinder valve assembly.

Special Tool - Fork Cylinder Holder: 57001-1413

Torque - Cylinder Valve Assembly: 54 N·m (5.5 kgf·m, 40 ft·lb)

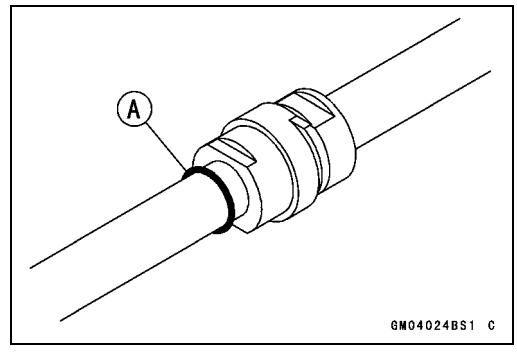
Install Inner Cylinder (KX125/250-M2~)



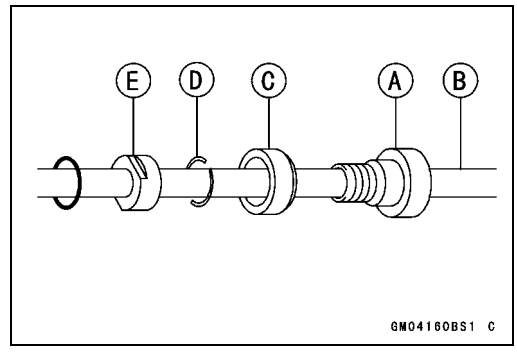
- Install the cylinder unit.
- Check the O-ring [A] on the cylinder valve assembly [B], and replace it with a new one.
- Replace the gasket [C] with a new one.
- Apply a non-permanent locking agent to the threads [D] of the cylinder valve assembly and screw the valve assembly into the bottom of the inner tube.
- Hold the cylinder unit with the fork cylinder holder, and tighten the cylinder valve assembly.

Special Tool - Fork Cylinder Holder: 57001-1573

Torque - Cylinder Valve Assembly: 54 N·m (5.5 kgf·m, 40 ft·lb)



- Check the O-ring [A] on the guide stay nut, and replace it with a new one if damaged.
- Install the inner cylinder unit.



- Install the piston holder [A] into the push rod assembly [B], then the oil rock piston [C], so that its notch side downward to the piston holder.
- Install the split ring keeper [D] in the groove of the push rod assembly.
- Fastening the top end of the piston holder to the split ring keeper and tighten the guide stay nut [E] to the piston holder.

Torque - Guide Stay Nut: 27 N·m (2.8 kgf·m, 20 ft·lb)

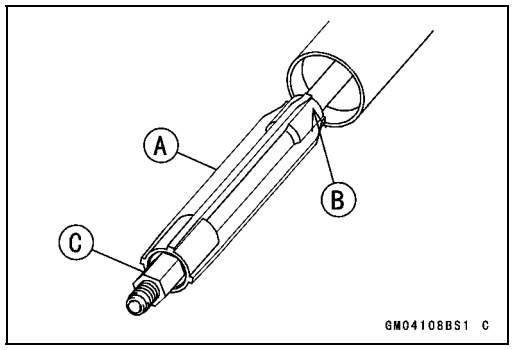
NOTE

○*Be sure to install securely a snap ring to fasten the oil rock piston on the push rod.*

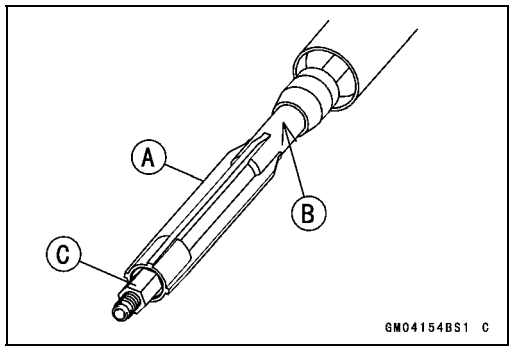
○*If it is not securely installed, the fork may be damaged.*

Front Fork

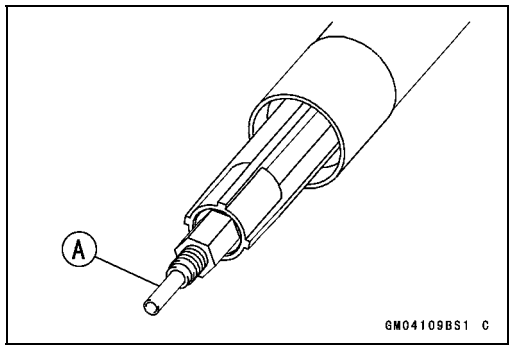
- Install the spring guide [A] so that the thinner portion end [B] is down.
- Screw on the push rod nut [C] fully.



- For KX125/250-M2~; as shown in the figure.



- Insert the rebound damping adjuster rod [A] into the push rod.

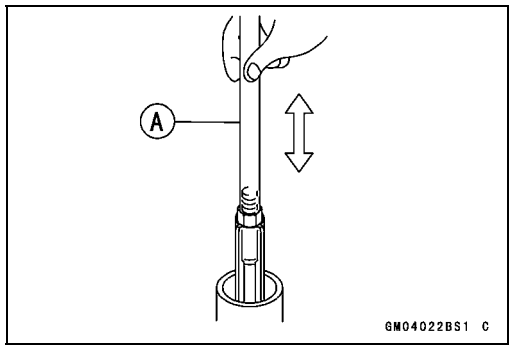


- Pour in the type and amount of fork oil specified and adjust the oil level (see Oil Level Adjustment).
- Screw the fork piston rod puller [A] onto the end of the push rod.

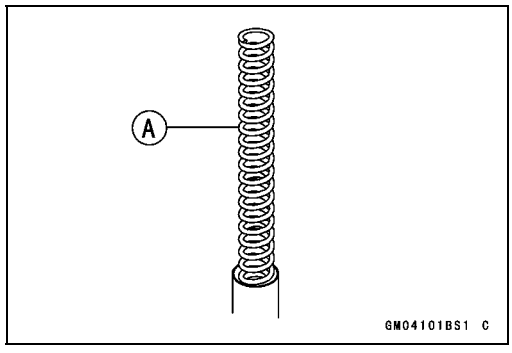
Special Tool - Fork Piston Rod Puller, M12 x 1.25: 57001 -1289

- Pull the push rod up with the special tool for the next procedures.

○Pull up the push rod slowly so as not to spill the fork oil out of the fork tube.



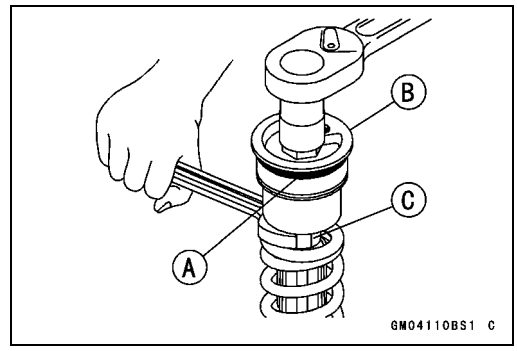
- Install the fork spring [A].
- Pull the fork spring away a little and slip the fork spring holder in on top of the spring seat and under the push rod nut .



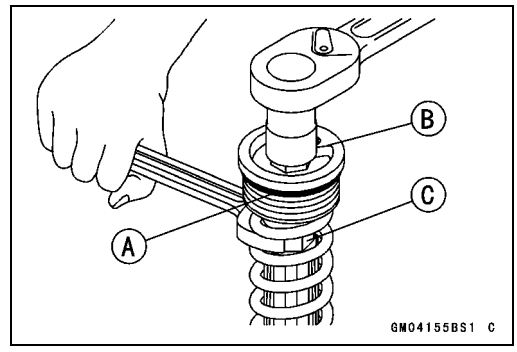
Front Fork

- Remove the fork piston rod puller.
- Check the O-ring [A] on the top plug and replace it with a new one if damaged.
- Unscrew the rebound damping adjuster fully, then screw the front fork top plug onto the push rod.
- Holding the top plug [B] with a wrench, tighten the push rod nut [C] against the top plug.

Torque - Push Rod Nut: 28 N·m (2.85 kgf·m, 20.6 ft·lb)



- For KX125/250-M2 model~; as shown in the figure.



- Pull out the fork spring holder, raise the outer tube and screw the top plug into it.
- After installing the front fork, tighten the top plug.

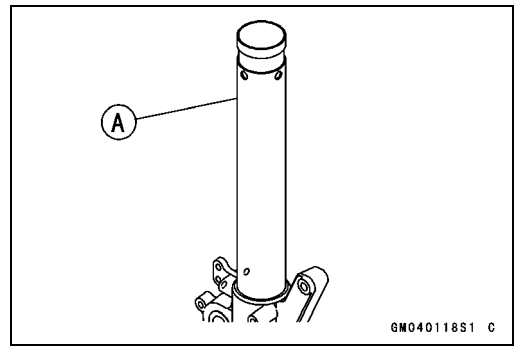
Torque - Fork Top Plug: 29 N·m (3.0 kgf·m, 22 ft·lb)

Inner Tube Inspection

- Visually inspect the inner tube [A], repair any damage.
- Nick or rust damage can sometimes be repaired by using a wet-stone to remove sharp edges or raised areas which cause seal damage.

★If the damage is not repairable, replace the inner tube. Since damage to the inner tube damages the oil seal, replace the oil seal whenever the inner tube is repaired or replaced.

- Temporarily assemble the inner and outer tubes, and pump them back and forth manually to check for smooth operation.

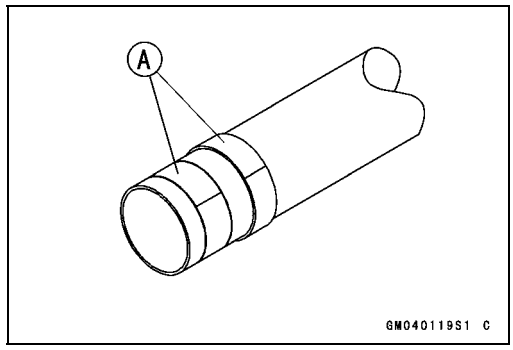


CAUTION
If the inner tube is badly bent or creased, replace it. Excessive bending, followed by subsequent straightening, can weaken the inner tube.

Front Fork

Guide Bush Inspection

- Visually inspect the guide bushes [A], and replace them if necessary.

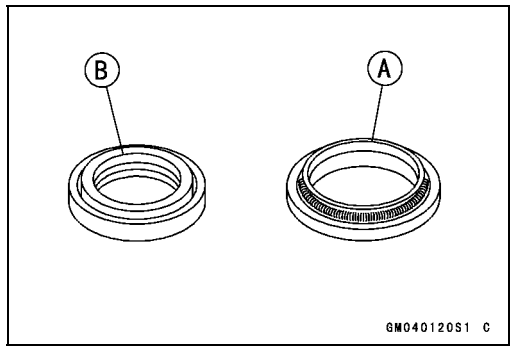


Dust Seal/Oil Seal Inspection

- Inspect the dust seal [A] for any signs of deterioration or damage.

★Replace it if necessary.

- Replace the oil seal [B] with a new one whenever it has been removed.



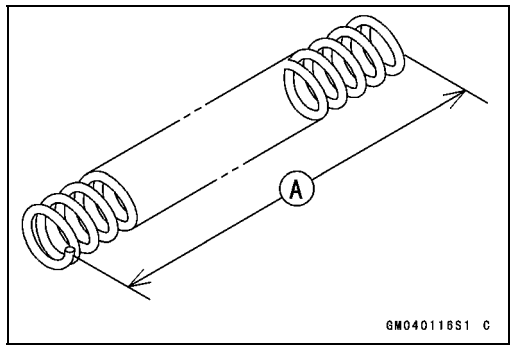
Spring Tension

- Since a spring becomes shorter as it weakens, check its free length [A] to determine its condition.

★If the spring of either fork leg is shorter than the service limit, it must be replaced. If the length of a replacement spring and that of the remaining spring vary greatly, the remaining spring should also be replaced in order to keep the fork legs balanced from motorcycle stability.

Fork Spring Free Length

Standard:	**460 mm (18.11 in.)**
Service Limit:	**450 mm (17.72 in.)**



Rear Suspension (Uni-Trak)

Rear Shock Absorber:

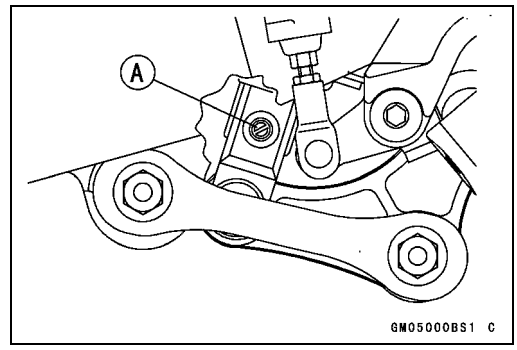
The rear suspension system of this motorcycle is Uni-trak. It consists of a rear shock absorber, swing arm, tie-rod and rocker arm.

To suit to various riding conditions, the spring preload of the shock absorber can be adjusted or the spring can be replaced with an optional one. Also the damping force can be adjusted easily so changing oil viscosity unnecessary.

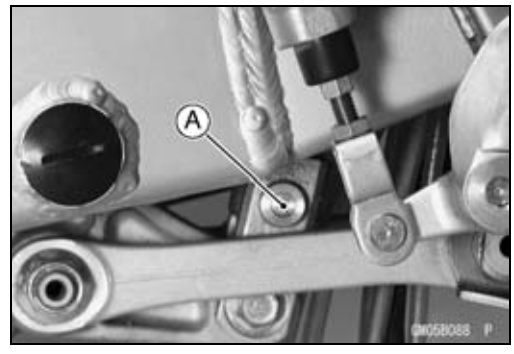
Rebound Damping Adjustment

- Turn the rebound damping adjuster [A] on the rear shock absorber lower end with the blade of a screwdriver until you feel a click.

★If the damper setting feels too soft or too stiff, adjust it in accordance with the following table:



- For KX125/250-M2 model~; as shown in the figure.
  [A]: Rebound Damping Adjuster

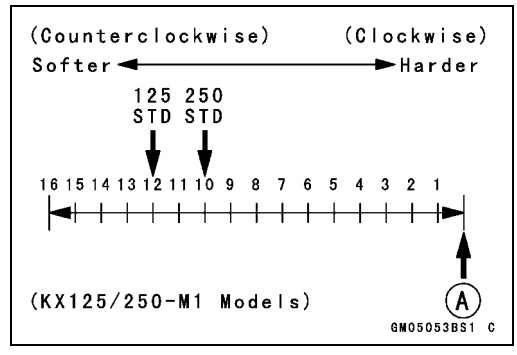


Seated position: adjuster turned fully clockwise [A].

Rebound Damping Adjuster Setting

Standard:

KX125-M1:	**12 clicks**
KX125-M2~:	**11 clicks**
KX250:	**10 clicks**



NOTE

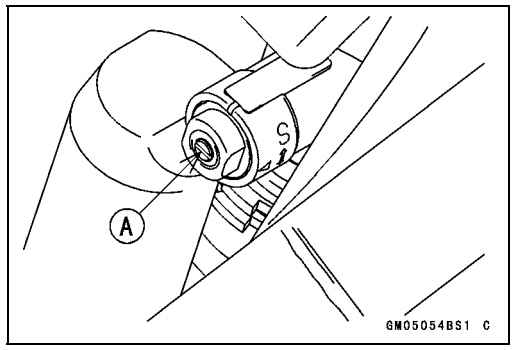
○*Adjustment of the rebound damping adjuster for the rear suspension will slightly affect the compression damping force. Always make any damping adjustments in small steps and test their effects before using them in competition.*

Rear Suspension (Uni-Trak)

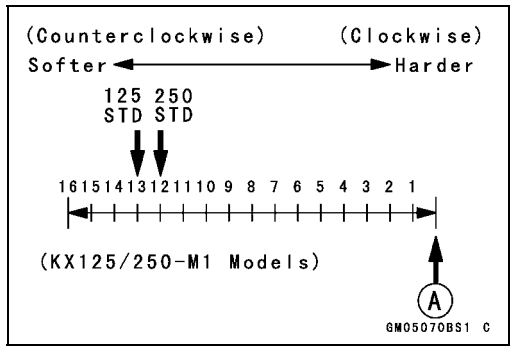
Compression Damping Adjustment

- Turn the compression damping adjuster [A] on the rear shock absorber gas reservoir with a flat-bead screwdriver.

★If the damping feels too soft or too stiff, adjust it in accordance with the following table.



Seated position: adjuster turned fully clockwise [A].



Compression Damping

Standard:

KX125:	**13 clicks**
KX250-M1:	**12 clicks**
KX250-M2~:	**10 clicks**

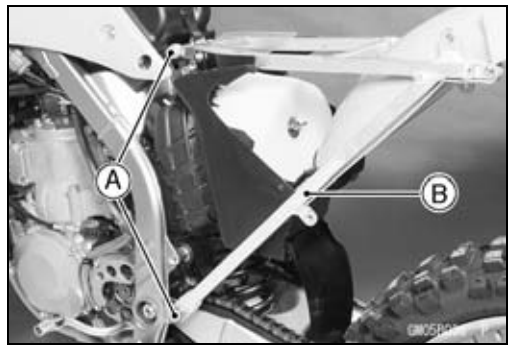
NOTE

○*Adjustment of the rebound damping adjuster for the rear suspension will slightly affect the compression damping force. Always make any damping adjustments in small steps and test their effects before using them in competition.*

Spring Preload Adjustment

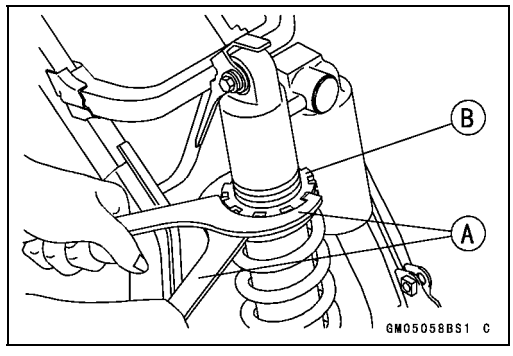
- Remove:
  Seat
  Side Covers
  Silencer
  Rear Frame Mounting Bolts [A]
  Rear Frame [B] with Air Cleaner Housing
- Using the jack under the frame, raise the rear wheel off the ground.

Special Tool - Jack: 57001-1238



- Using the hook wrenches [A], loosen the locknut [B] on the rear shock absorber.

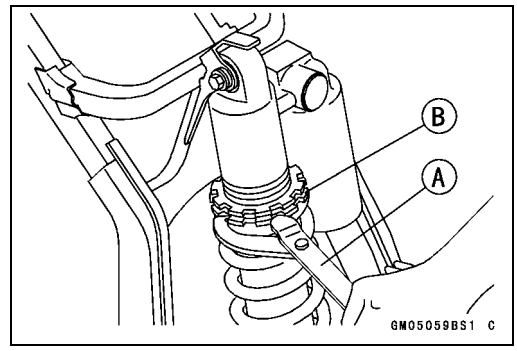
Special Tool - Hook Wrench R37.5, R42: 57001-1101



Rear Suspension (Uni-Trak)

- Using the stem nut wrench [A], turn the adjusting nut [B] as required. Turning the adjusting nut downward marks the spring action harder and upward softer.

Special Tool - Steering Stem Nut Wrench: 57001-1100



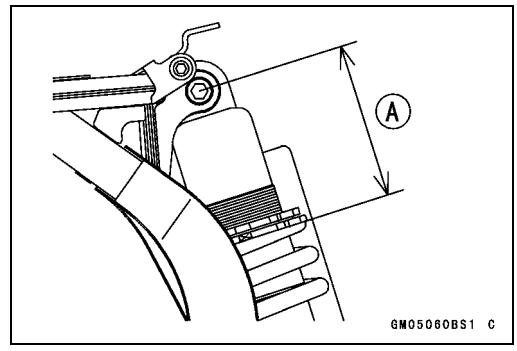
Spring Preload Adjustment
(Adjusting nut position [A] from the center of the mounting hole)

Standard:

KX125-M1:	**112 mm (4.41 in.)**
KX125-M2~:	**111 mm (4.37 in.)**
KX250-M1:	**117 mm (4.61 in.)**
KX250-M2~:	**112 mm (4.41 in.)**

Adjustable Range

KX125:	**109 ~ 127.5 mm (4.29 ~ 5.02 in.)**
KX250:	**109 ~ 129.5 mm (4.29 ~ 5.10 in.)**



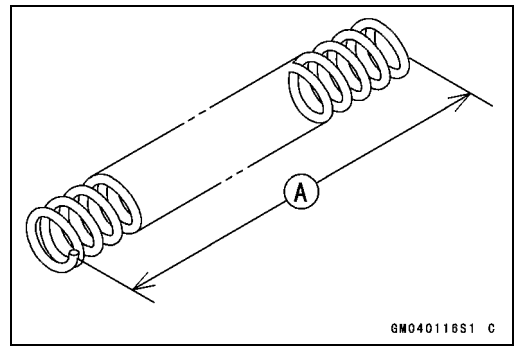
- Tighten the locknut securely.
- After adjusting, move the spring up and down to make sure that the spring is seated.
- Install the parts removed.
- Tighten the rear frame mounting bolts.

Torque - Rear Frame Mounting Bolts: 34 N·m (3.5 kgf·m 25 ft·lb)

Spring Tension

- Since the spring becomes shorter as it weakens, check its free length [A] to determine its condition.

★If the spring of either rear shock absorber is shorter than the service limit, it must be replaced. If the length of replacement spring and that of the remaining spring vary greatly, the remaining spring should also be replaced in order to keep the rear shock absorbers balanced of motorcycle stability.



Shock Absorber Spring Free Length

Standard:	**260 mm (10.24 in.)**
Service Limit:	**255 mm (10.04 in.)**

Rear Shock Absorber Removal

- Remove:
  Seat
  Side Covers
  Silencer
  Rear Frame with Air Cleaner Housing
- Using the jack under the frame, raise the rear wheel off the ground.

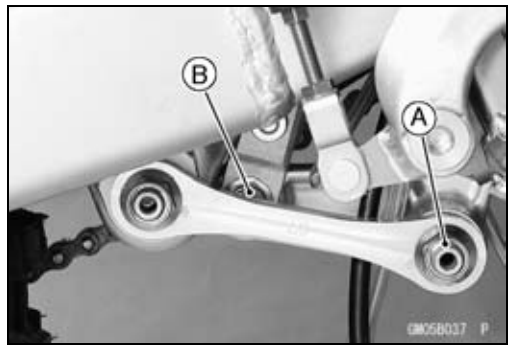
Special Tool - Jack: 57001-1238

Rear Suspension (Uni-Trak)

● Remove the tie-rod front mounting bolt [A].

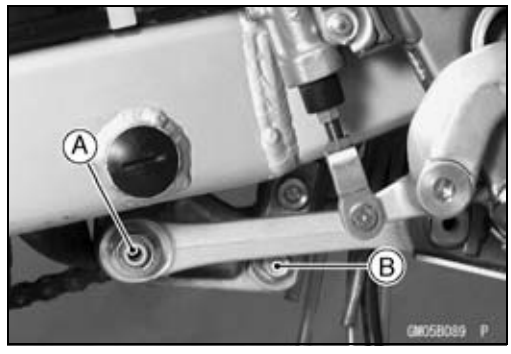
CAUTION

When pulling out the mounting bolts, lift the rear wheel slightly. Forcing or tapping on a bolt could damage the bolt, sleeve, and bearing

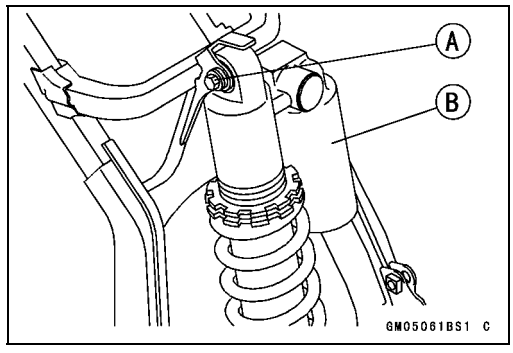


● Remove the rear shock absorber lower mounting bolt [B].

● For KX125/250-M2 model~; note the following.
○Remove the tie-rod rear mounting bolt [A].
○Remove the rear shock absorber lower mounting bolt [B].



● Remove the rear shock absorber upper mounting bolt [A], nut, and pull out the rear shock absorber [B] down and out.



Rear Shock Absorber Installation

● Pack the rocker arm needle bearings with grease.
● Tighten the following:

Torque - Rear Shock Absorber Upper Mounting Nut: 39 N·m (4.0 kgf·m, 29 ft·lb)
Rear Shock Absorber Lower Mounting Nut: 34 N·m (3.5 kgf·m, 24 ft·lb)
Tie-Rod Mounting Nut: 83 N·m (8.5 kgf·m, 61 ft·lb)
Rear Frame Mounting Bolts: 34 N·m (3.5 kgf·m, 25 ft·lb)

Spring Replacement

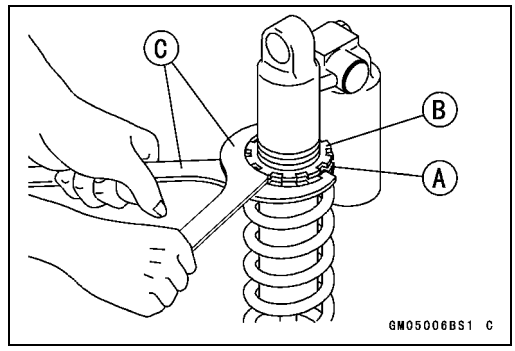
In addition to the standard spring, heavy and light springs are available. If the standard spring is improper for your purpose, select a proper one according to the rider's weight or course conditions.

● Remove
Side Covers
Seat
Silencer
Rear Frame with Air Cleaner Housing
● Remove the rear shock absorber.
● Clean the threaded portion on the upper of the rear shock absorber.
● Hold the lower of the rear shock absorber with a vise.

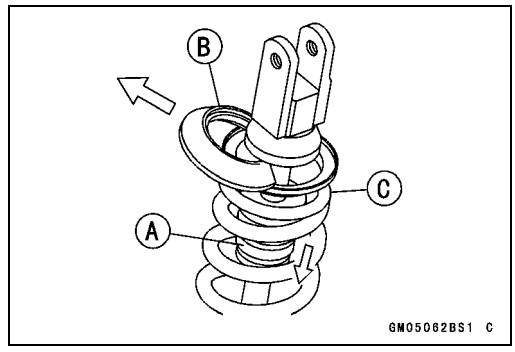
Rear Suspension (Uni-Trak)

- Using the hook wrenches [C], loosen the locknut [B] and turn the adjusting nut [A] all way up.

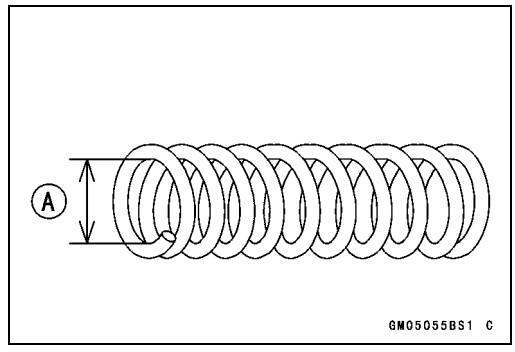
Special Tool - Hook Wrench R37.5, R42: 57001-1101



- Remove the rear shock absorber from the vise.
- Slide down the rubber bumper [A].
- Remove the spring guide [B] from the shock absorber and lift off the spring [C].



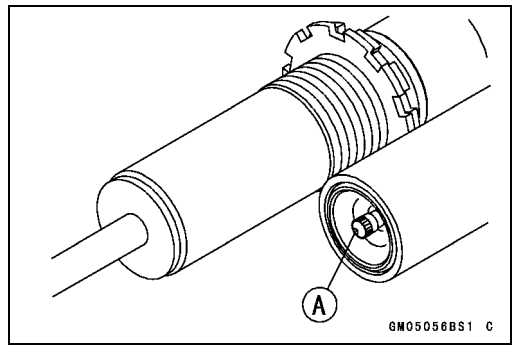
- Exchange the spring for an optional part. Install the spring so that closed coil large diameter end [A] faces upward.
- Install the spring guide.
- Adjust the spring preload (see Spring Preload Adjustment).
- Install the rear shock absorber.
- Install the parts removed.



Rear Shock Absorber Disassembly (Oil Change)

The oil should be changed in the rear shock absorber at least once per racing season. The frequency for best performance must be based upon riding conditions and rider ability.

- Remove the rear shock absorber from the frame (see Rear Shock Absorber Removal).
- Remove the shock absorber spring (see Spring Replacement).
- Point the valve [A] away from you. slowly release nitrogen gas pressure by pushing down the valve core with a screw driver.

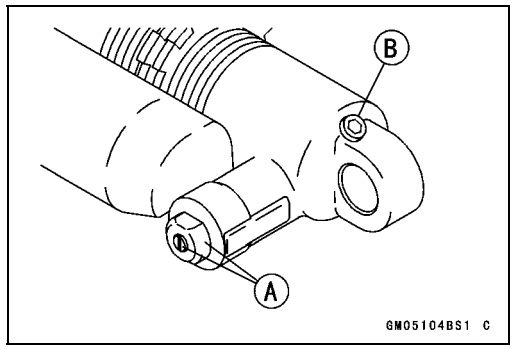


⚠ WARNING

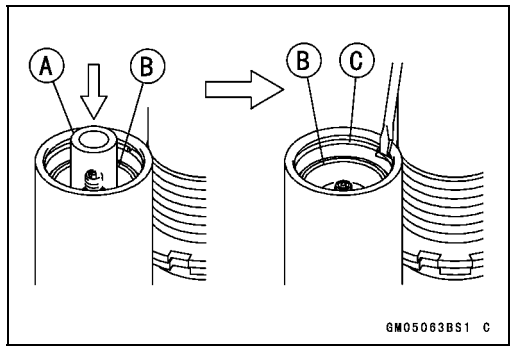
Do not to point the reservoir valve toward your face or body when releasing nitrogen gas pressure. An oil mist is often released with the nitrogen. Always release nitrogen gas pressure before disassembling the rear shock absorber to prevent explosive separation of parts.

Rear Suspension (Uni-Trak)

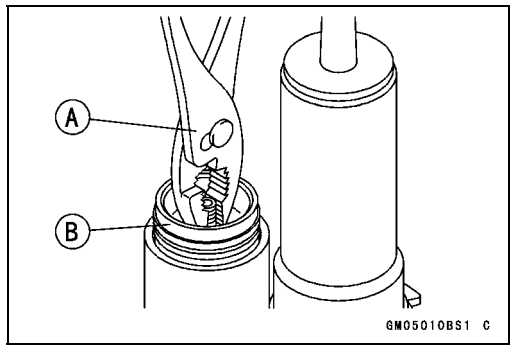
● For KX125/250-M2 model~; note the following.
○Adjust the gas reservoir damping adjusters [A] to the softest position.
○Remove the air bleeder bolt [B] and pump the rear shock to drain the oil out of the rear shock body.
○Install the air bleeder bolt.



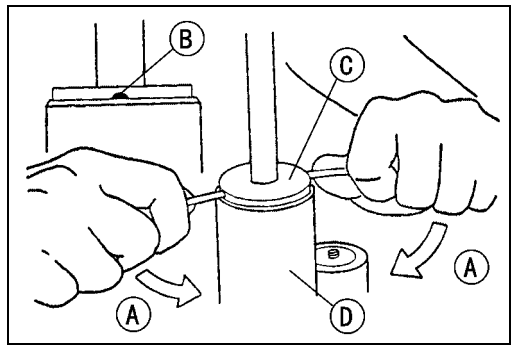
● Using the suitable tool [A] and press, push the reservoir cap [B] in 10 mm (0.39 in.).
● Remove the circlip [C] from the gas reservoir.



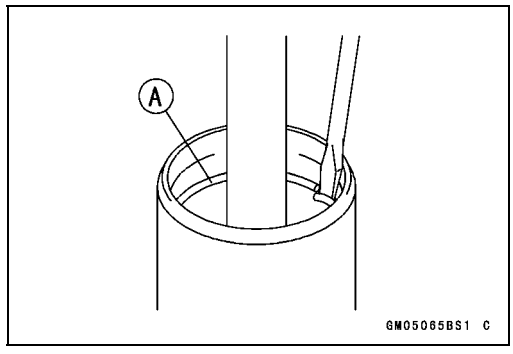
● Pull the gas reservoir cap [B] out of the gas reservoir using the pliers [A].



● Pry or tap [A] at the gaps [B] in the stop [C] with suitable tools to free the stop from the rear shock body [D].



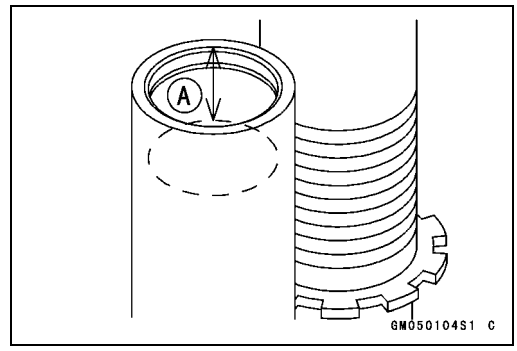
● Slide the stop up the top of the piston rod then lightly tap around the seal with a suitable rod and mallet, and push the seal assembly 10 mm (0.39 in.) down.
● Remove the circlip [A].
● Lightly move the piston rod back and forth, and pull out the piston rod assembly.
● Pour the oil out of the rear shock body.



Rear Suspension (Uni-Trak)

Rear Shock Absorber Assembly

- Pour KYB K2-C (SAE 5W or Bel-Ray SE2 #40) oil into the gas reservoir to 60 ~ 70 mm (2.63 ~ 2.76 in.) [A] from the gas reservoir upper end.

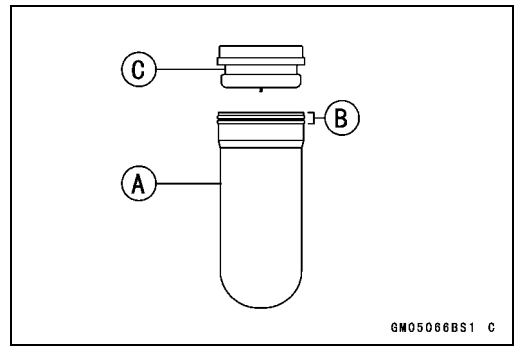


- Check that the bladder [A] on the gas reservoir cap is not partially collapsed.

★If it is, push down the valve core with a screwdriver.

- Check the bladder for sign of damage or crack.

★If necessary, replace it with a new one.



CAUTION
Do not use a damaged or partially collapsed bladder, because it may burst, gently reducing rear shock performance. .

- Apply grease to the lip [B] of the bladder and install the reservoir cap [C].

- Push the bladder into the gas reservoir slowly until it just clears the circlip groove. Wipe out any spilled oil.

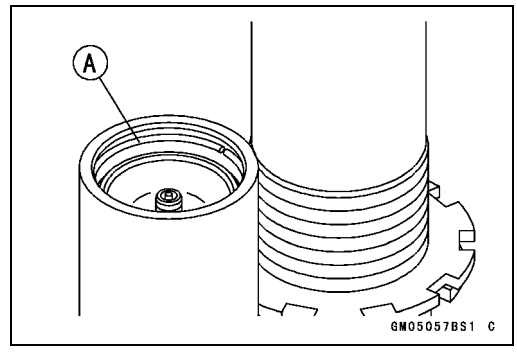
CAUTION
Ensure that no air remains in the system.

- Check the circlip for weakening, deformity and flaws.

★If necessary, replace it with a new one.

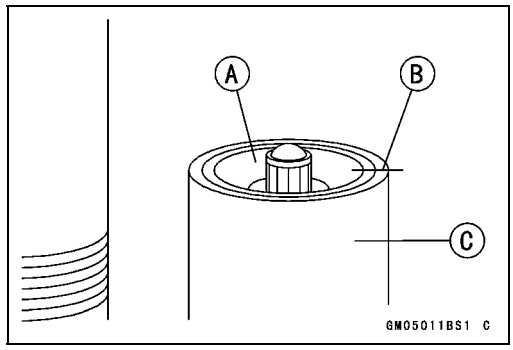
CAUTION
If weakened, deformed or flawed circlip is used, the gas reservoir cap may not hold when injecting the nitrogen gas. This would allow oil and internal parts to explode out of the reservoir.

- Mount the circlip [A] in the groove in the gas reservoir.



Rear Suspension (Uni-Trak)

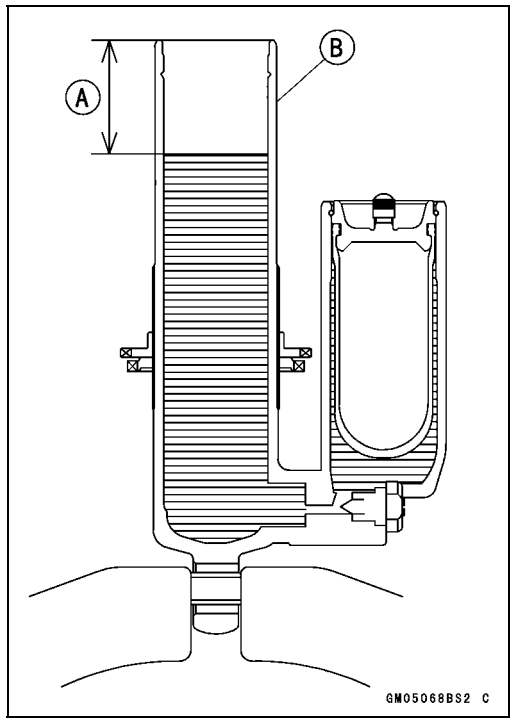
- Pull up the gas reservoir cap [A] against the circlip. The end of the gas reservoir cap must align [C] with the end of the gas reservoir [B].



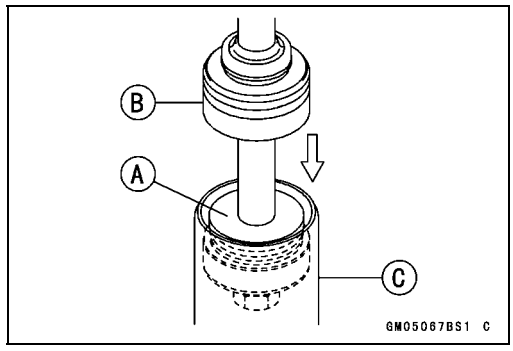
⚠ WARNING

If the end of the gas reservoir cap and the end of the gas reservoir are not aligned, the circlip is not correctly fitting in the groove in the gas reservoir or is deformed. In this case, the oil and internal parts could explode out of the reservoir when injecting the nitrogen gas or while riding the motorcycle.

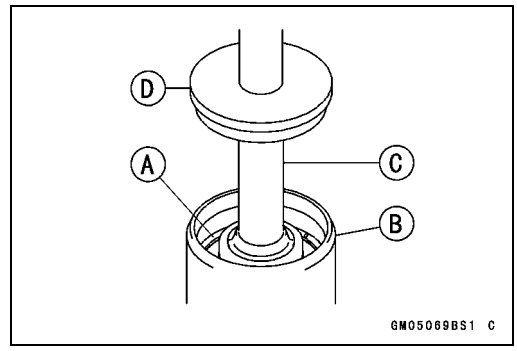
- Pour KYB K2-C (SAE 5W or Bel-Ray SE2 #40) oil into the rear shock body to 55 mm (1.77 in.) [A] from the lower end [B] of the rear shock body.



- Insert the piston end [A] of the piston rod assembly into the rear shock body [C] slowly. Do not insert the seal assembly [B] yet. Pump the piston rod until all the air is forced out of the rear shock body.



Rear Suspension (Uni-Trak)



- Push the seal assembly into the rear shock body until it just clears the circlip groove.
- Check the circlip.

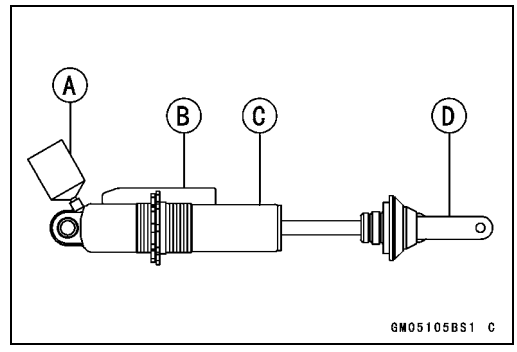
★If it is deformed or damaged, replace it with a new one.

- Fit the circlip [A] into the groove in the rear shock body [B].

CAUTION

If the circlip is not a certain fit in the groove in the rear shock body, the piston rod assembly may come out of the shock absorber when injecting the nitrogen gas or riding the motorcycle.

- Pull up the piston rod assembly [C] against the circlip.
- Force the stop [D] into the rear shock body by lightly tapping around the edge of the stop with a mallet.
- Fully extend the piston rod assembly.



- For KX125/250-M2 model~; note the following.

○Hold the lower end of the push rod assembly with a vise.
○Pump the rear shock up and down several times, and then leave it in the fully extend position for about three minutes.
○Remove the air bleeder bolt from the upper part of the rear shock body.

★If oil comes out of the air bleeder bolt hole, let it overflow until it stops.

○Install the suitable oil cup [A] to the air bleeder bolt hole, and fill the specified oil into the cup.
○Purge the air from between the gas reservoir [B] and rear shock body [C] by slowly pumping the piston rod [D] in and out.
○Install the air bleeder bolt securely.
○Fully extend the piston rod assembly.

- Inject nitrogen gas to a pressure of 50 kPa (0.5 kgf/cm², 7 psi) through the valve on the gas reservoir.
- Check the rear shock body and gas reservoir for oil and gas leaks.

★If there are no leaks, inject the nitrogen gas up to the 980 kPa (10 kgf/cm², 142 psi) pressure.

⚠ WARNING

Pressurize the gas reservoir with nitrogen gas only. Do not use air or other gases, since they may cause premature wear, rust, fire hazard or substandard performance.
High pressure gas is dangerous. Have a qualified mechanic perform this procedure.

- Install the spring and spring guide.
- Adjust spring preload. Reinstall the rear shock absorber.
- Install the parts removed.

Rear Suspension (Uni-Trak)

Rear Shock Absorber Scrapping

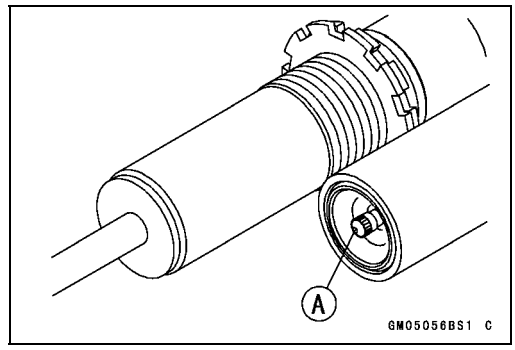
⚠ WARNING

Since the reservoir tank of the rear shock absorber contains nitrogen gas, do not incinerate the reservoir tank without first releasing the gas or it may explode.

- Remove the shock absorber (see Rear Shock Absorber Removal).
- Remove the valve cap [A] and release the nitrogen gas completely from the gas reservoir.
- Remove the valve.

⚠ WARNING

Since the high pressure gas is dangerous, do not point the valve toward your face or body.



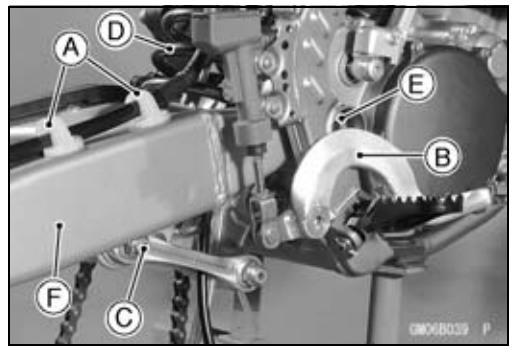
Swingarm

Swingarm Removal

- Place the jack under the frame so that the rear wheel is off the ground.

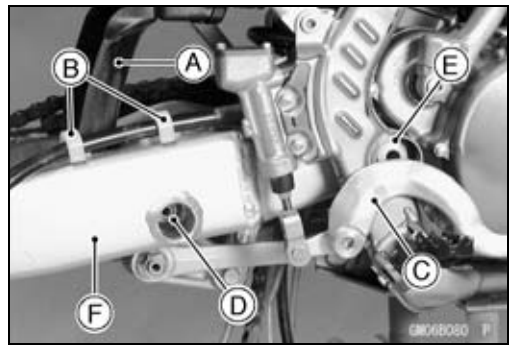
Special Tool - Jack: 57001-1238

- Remove:
  Rear Wheel (see Wheels/Tires chapter)
  Clamps [A]
  Brake Pedal [B]
  Tie-rod Rear Mounting Bolt [C]
  Rear Shock Absorber [D] (see Rear Shock Absorber Removal)



- For KX125/250-M2 model~; note the following.

○Remove:
  Rear Wheel (see Wheels/Tires chapter)
  Rear Flap [A]
  Clamps [B]
  Brake Pedal [C]
  Plug and Rocker Arm Pivot Nut [D]



CAUTION

When pulling out the mounting bolts, lift the rear wheel slightly. Forcing or tapping on a bolt could damage the bolt, sleeve, and bearing.

- Pull out the swing arm pivot shaft [E], and remove the swing arm [F].
- Separate the chain guide and chain slipper from the swing arm.

Swingarm Installation

- Apply plenty of grease to the inside of the needle bearings, sleeves, and oil seals.
- Tighten the following:

Torque - Swingarm Pivot Shaft Nut: 98 N·m (10.0 kgf·m, 72 ft·lb)
Tie-Rod Mounting Nut: 83 N·m (8.5 kgf·m, 61 ft·lb)

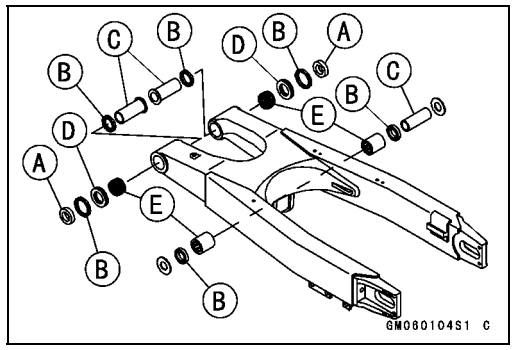
- Refer to the Wheels/Tires, Final Drive, and Brakes chapters for wheel installing.

Swingarm

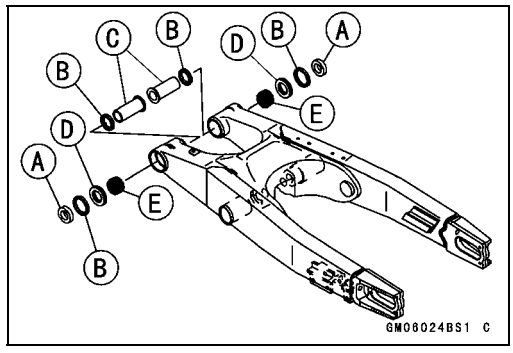
Swingarm Bearing Removal

- Remove:
  Swingarm
  Collars [A]
  Grease Seals [B]
  Sleeves [C]
  Needle Bearings [D]
- Remove the needle bearings using the oil seal & bearing remove [E].

Special Tool - Oil Seal & Bearing Remover: 57001-1058



- For KX125/250-M2 model~; as shown in the figure.



Swingarm Bearing Installation

- Replace the needle bearings, grease seals and oil seals with new ones.
- Apply plenty of grease to the grease seals, oil seals and needle bearings.

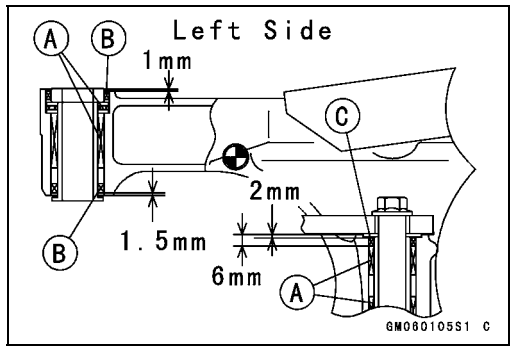
NOTE

○*Install the needle bearings so that the manufacturer's marks face out.*
○*Install the grease seals so that the deep groove side of the rip in-ward.*

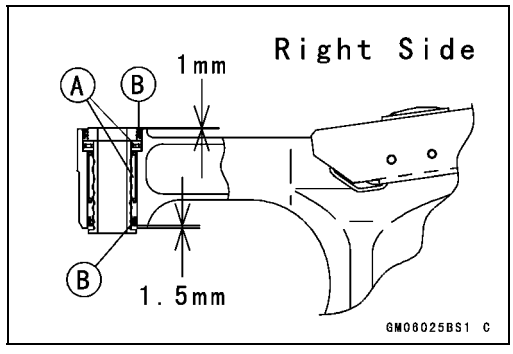
Special Tool - Bearing Driver Set: 57001-1129

- Install the needle bearings [A] grease seals [B] and oil seals [C] position as shown.

○The installation procedure is the same as the counter side.



- For KX125/250-M2 model~; as shown in the figure.



Drive Chain Guide, Chain Slipper Wear

- Refer to the Chain Guide and Chain Slipper Wear Inspection in the Periodic Maintenance chapter.

Tie-Rod, Rocker Arm

Tie-Rod Removal

- Using the jack under the frame, raise the rear wheel off the ground.

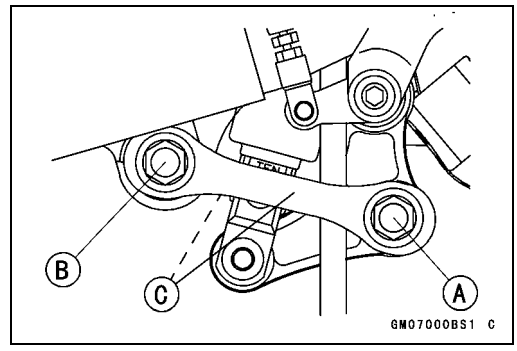
Special Tool - Jack: 57001-1238

- Remove the tie-rod front mounting bolt [A].

CAUTION

When pulling out the mounting bolts, lift the rear wheel slightly. Forcing or tapping on a bolt could damage the bolt, sleeve, and bearing.

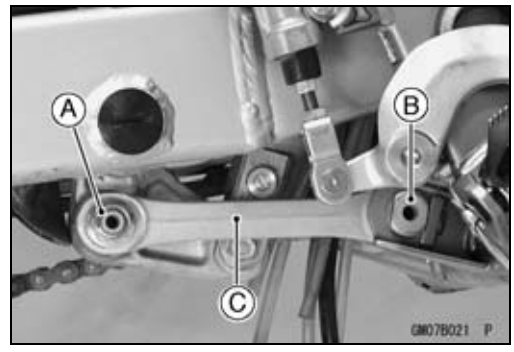
- Remove the tie-rod rear mounting bolt [B], and then take out the tie-rods [C].



- For KX125/250-M2 model~; note the following.

○Remove the tie-rod rear mounting bolt [A].

○Remove the tie-rod front mounting bolt [B], and then take out tie-rod [C].



Tie-Rod Installation

- Apply plenty of grease to the inside of the needle bearings and oil seals.
- Be sure seated the washers to the rocker arm mating surfaces.
- Tighten the tie-rod front and rear mounting nuts.

Torque - Tie-Rod Mounting Nuts: 83 N·m (8.5 kgf·m, 61 ft·lb)

Rocker Arm Removal

- Using the jack under the frame, raise the rear wheel off the ground.

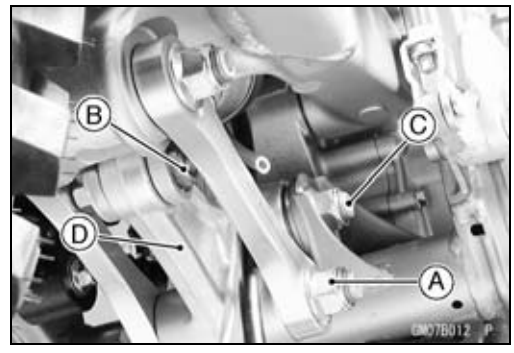
Special Tool - Jack: 57001-1238

- Loosen the swingarm pivot shaft nut.
- Remove the tie-rod front mounting bolt [A].

CAUTION

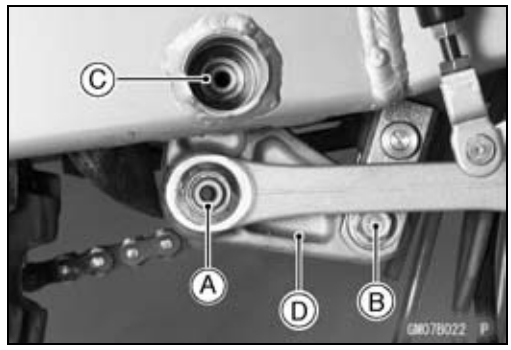
When pulling out the mounting bolts, lift the rear wheel slightly. Forcing or tapping on bolt could damage the bolt, sleeve, and bearing.

- Remove the rear shock absorber lower mounting bolt [B].
- Remove the rocker arm pivot shaft [C].
- Remove the rocker arm [D].



Tie-Rod, Rocker Arm

● For KX125/250-M2 model~; note the following.
○Remove the tie-rod rear mounting bolt [A].
○Remove the rear shock absorber lower mounting bolt [B].
○Remove the rocker arm pivot shaft [C] and then remove rocker arm [D].



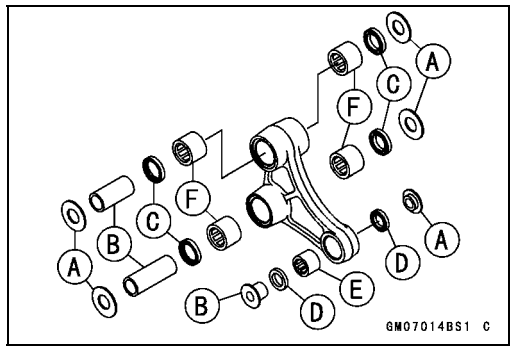
Rocker Arm Installation

● Apply plenty of grease to the inside of the rocker arm holes, needle bearings, oil seals and grease seals outside of the sleeve.
● Be sure seated washers.
● Tighten the following:

Torque - Rocker Arm Pivot Nut: 83 N·m (8.5 kgf·m, 61 ft·lb)
Rear Shock Absorber Lower Mounting Nut: 34 N·m (3.5 kgf·m, 25 ft·lb)
Tie-Rod Mounting Nut: 83 N·m (8.5 kgf·m, 61 ft·lb)
Swingarm Pivot Shaft Nut: 98 N·m (10.0 kgf·m, 72 ft·lb)

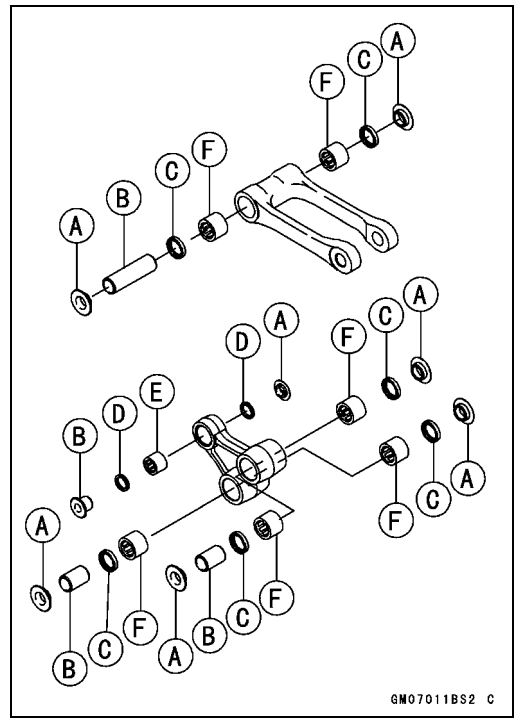
Tie-Rod and Rocker Arm Bearing Removal

● Remove:
Tie-Rod (see Tie-Rod Removal)
Rocker Arm (see Rocker Arm Removal)
Washers [A]
Sleeves [B]
Oil Seal [C]
Grease Seals [D]
● Remove the needle bearings [E], using the bearing remover head and bearing remover shaft.
● Remove the needle bearing [F], using the oil seal & bearing remover.



Tie-Rod, Rocker Arm

Special Tool - Bearing Remover Head, ϕ15 × ϕ17: 57001 -1267
Bearing Remover Shaft, ϕ9: 57001-1265
Oil Seal & Bearing Remover: 57001-1058



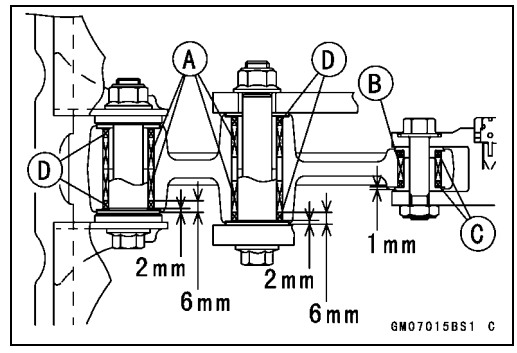
- For KX125/250-M2~; as shown in the figure.

Tie-Rod and Rocker Arm Bearing Installation

- Replace the needle bearing, grease seals and oil seals with new ones.
- Apply plenty of grease to the oil seal and needle bearings.

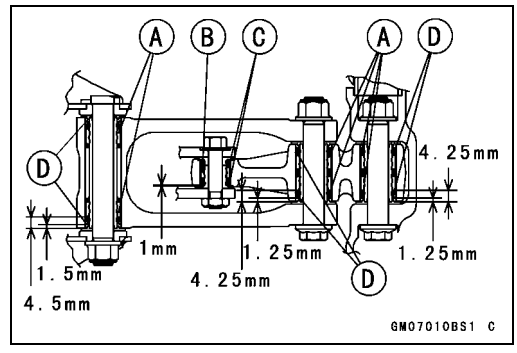
NOTE

○*Install the grease seals so that the deep groove side of the rip out-ward.*



- Install the needle bearing [A], [B], grease seals [C] and oil seals [D] position as shown.
- Tighten the following:

Torque - Rocker Srm Pivot Nut: 83 N·m (8.5 kgf·m, 61 ft·lb)
Rear Shock Absorber Lower Mounting Nut: 34 N·m (3.5 kgf·m, 25 ft·lb)
Tie-Rod Mounting Nut: 83 N·m (8.5 kgf·m, 61 ft·lb)
Swingarm Pivot Shaft Nut: 98 N·m (10.0 kgf·m, 72 ft·lb)



- For KX125/250-M2 model~; as shown in the figure.

Needle Bearing Inspection

★If there is any doubt as to the condition of either needle bearing, replace the bearing and sleeve as a set.

Uni-Trak Maintenance

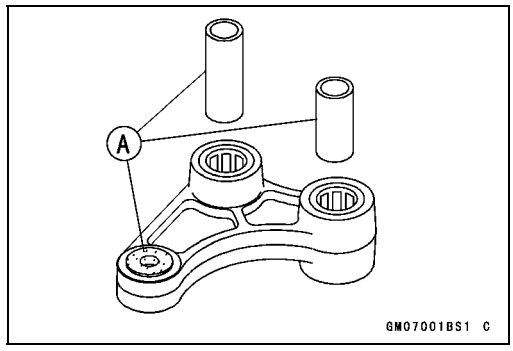
Uni-Trak Linkage Inspection

- Refer to the Uni-Trak Linkage Inspection in the Periodic Maintenance chapter.

Rocker Arm Sleeve Wear

- Pull out the sleeves [A] of the rocker arm, and measure the outside diameter of the sleeve.

★If the sleeve is worn past the service limit, replace the sleeve.



Sleeve Outside Diameter

[Large]

Standard:	**19.987 ~ 20.000 mm (0.7869 ~ 0.7874 in.)**
Service Limit:	**19.85 mm (0.781 in.)**

[Small]

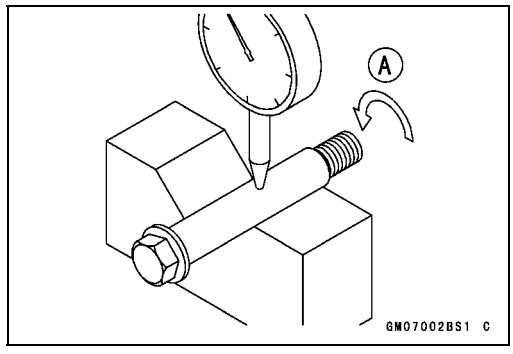
Standard:	**15.987 ~ 16.000 mm (0.6294 ~ 0.6299 in.)**
Service Limit:	**15.85 mm (0.624 in.)**

Rocker Arm Mounting Bolt Bend

A bent bolt causes vibration, poor handling, and instability.

- To measure the bolt runout, remove the bolt, place it in V blocks, and set a dial gauge to the bolt at a point halfway between the blocks. Turn [A] the bolt to measure the runout. The amount of dial variation is the amount of runout.

★If runout exceeds the service limit, replace the bolt.



Bolt Runout

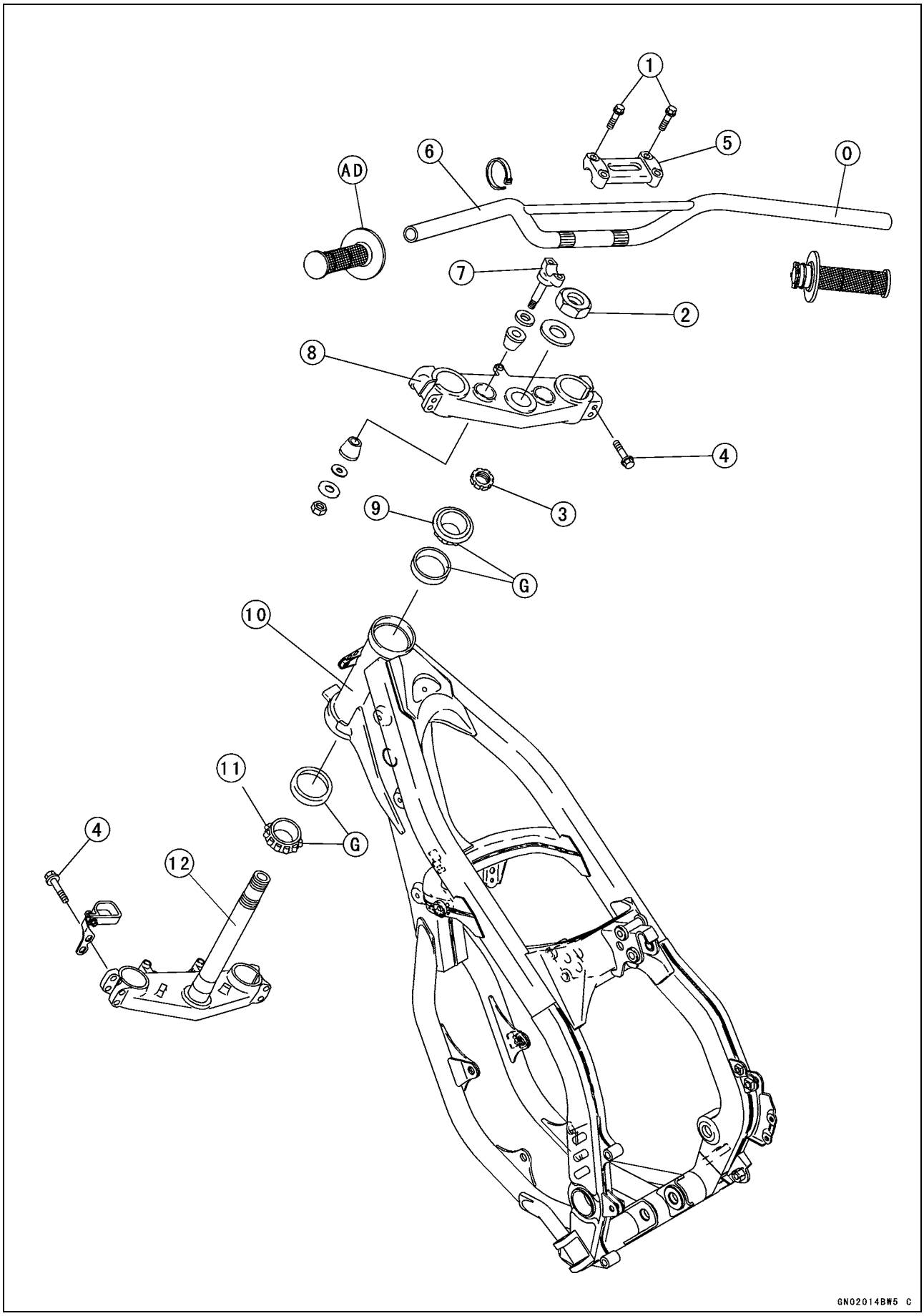
Standard:	**Under 0.1 mm (0.004 in.)**
Service Limit:	**0.2 mm (0.008 in.)**

Steering

Table of Contents

Exploded View 13-2
Special Tools 13-4
Steering 13-5
  Steering Inspection 13-5
  Steering Adjustment 13-5
  Steering Stem, Stem Bearing Removal 13-5
  Steering Stem, Stem Bearing Installation 13-6
Steering Maintenance 13-8
  Stem Bearing Lubrication 13-8
  Stem Bearing Wear, Damage 13-8
  Stem Warp 13-8
Handlebar 13-9
  Handlebar Removal 13-9
  Handlebar Installation 13-9

Exploded View



Exploded View

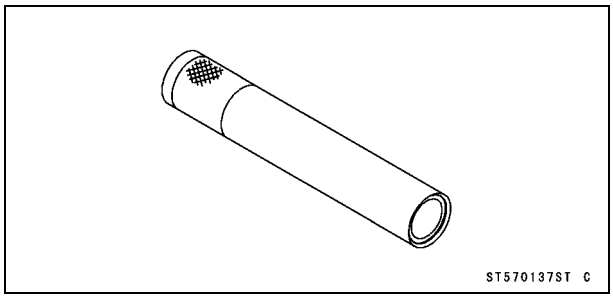
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Handlebar Clamp Bolts	25	2.5	18.0	
2	Steering Stem Head Nut	78	8.0	58	
3	Steering Stem Locknut	4.9	0.5	43 in·lb	T
4	Front Fork Clamp Bolts (Upper, Lower)	20	2.0	14.5	

5. Handlebar Clamp
6. Handlebar
7. Handlebar Holder
8. Steering Stem Head Bracket
9. Tapered Roller Bearing
10. Head Pipe
11. Tapered Roller Bearing
12. Steering Stem

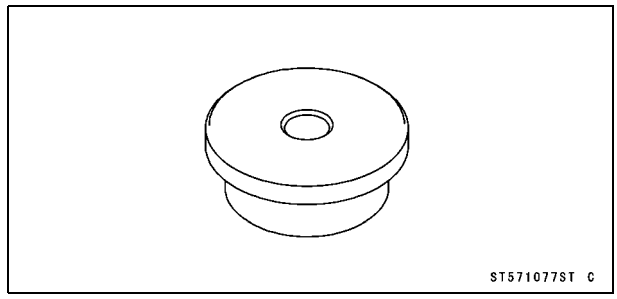
AD: Apply adhesive cement
G: Apply grease.
O: Apply 2 Stroke Oil
T: Tighten all snugly, then loosen, retighten to 4.9 N·m (0.5 kgf·m, 43 in·lb).

Special Tools

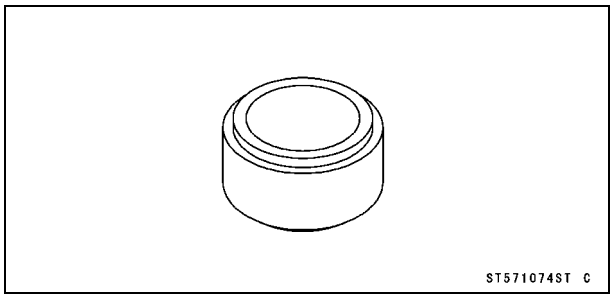
Steering Stem Bearing Driver:
57001-137



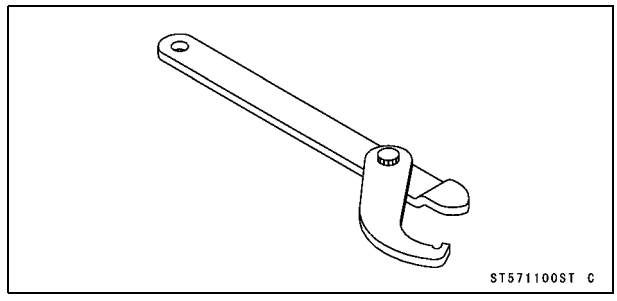
Head Pipe Outer Race Driver, ϕ54.5:
57001-1077



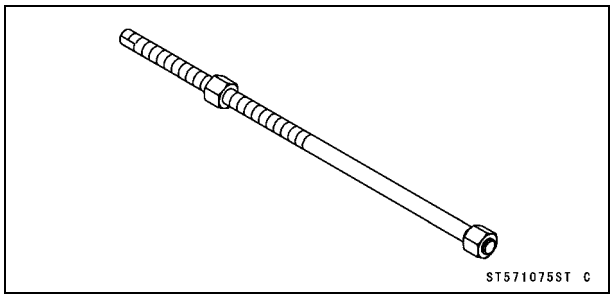
Steering Stem Bearing Driver Adapter, ϕ34.5:
57001-1074



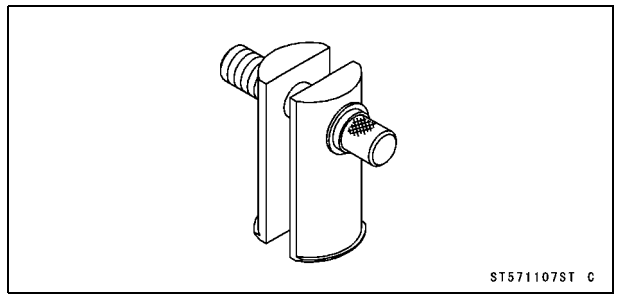
Steering Stem Nut Wrench:
57001-1100



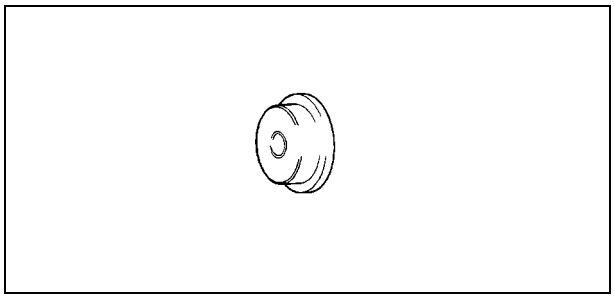
Head Pipe Outer Race Press Shaft:
57001-1075



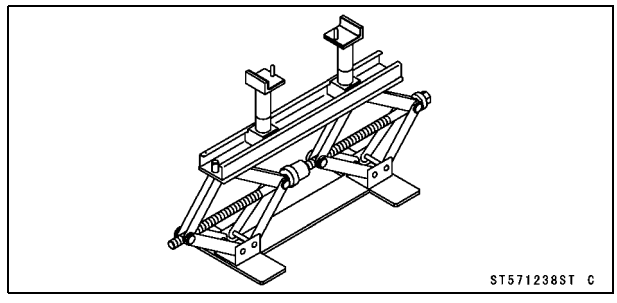
Head Pipe Outer Race Remover ID > 37 mm:
57001-1107



Head Pipe Outer Race Driver, ϕ51.5:
57001-1076



Jack:
57001-1238



Steering

Steering Inspection

- Refer to the Steering Inspection in the Periodic Maintenance chapter.

Steering Adjustment

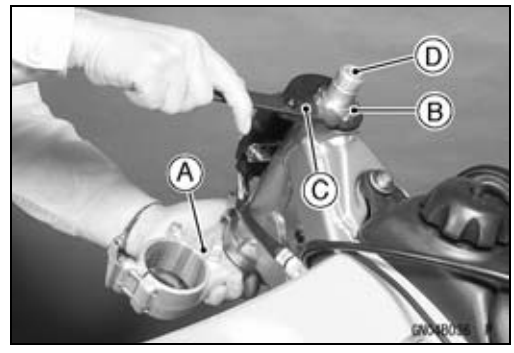
- Refer to the Steering Adjustment in the Periodic Maintenance chapter.

Steering Stem, Stem Bearing Removal

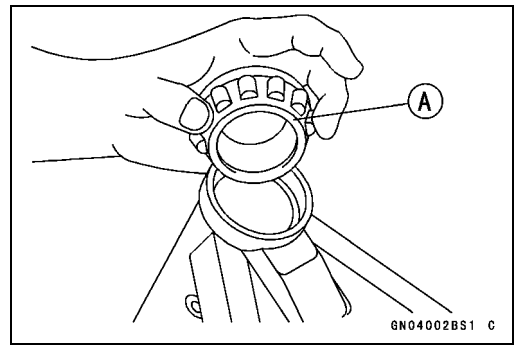
- Remove:
  Front Wheel (see Wheels/Tires chapter)
  Brake Hose Clamp (see brake System chapter)
  Caliper Mounting Bolts (see Brake System chapter)
  Master Cylinder Clamp (see Brake System chapter)
  Front Fender
  Handlebar (see Handlebar Removal)
  Front Fork (see Suspension chapter)

- Remove the steering stem head nut and washer.
- Remove the steering stem head.
- Pushing up on the stem base [A], and remove the steering stem locknut [B], with the steering stem nut wrench [C], then remove the steering stem [D] and stem base.

Special Tool - Steering Stem Nut Wrench: 57001-1100



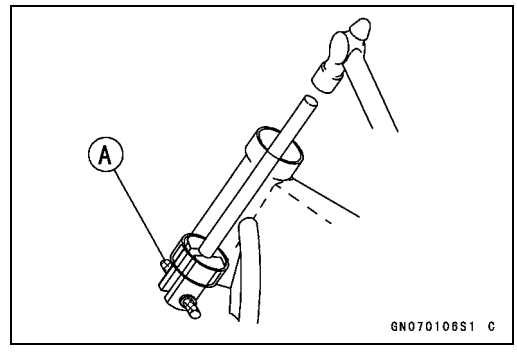
- Take off the upper stem bearing inner race (tapered roller bearing) [A].



- Drive out the bearing outer races from the head pipe.

○Remove the outer races pressed into the head pipe, using the head pipe outer race remover [A], and hammer the head pipe outer race remover to drive it out.

Special Tool - Head Pipe Outer Race Remover ID > 37 mm: 57001-1107

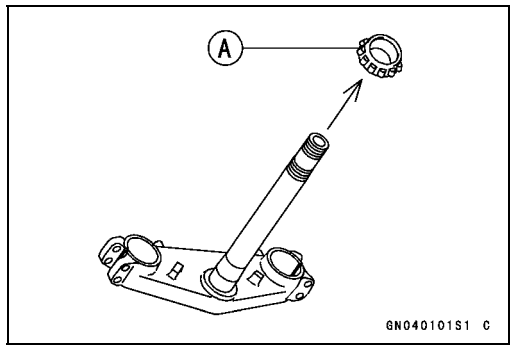


NOTE

○*If either steering stem bearing is damaged, it is recommended that both the upper and lower bearing (including outer races) should be replaced with new ones.*

Steering

● Remove the lower stem bearing inner rase (tapered roller bearing) [A] with its grease seal from the stem using suitable tools.

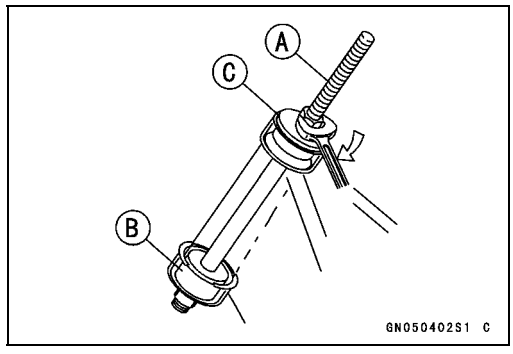


Steering Stem, Stem Bearing Installation

● Replace the bearing outer race with new ones.

○Apply grease to the outer races, and drive them into the head pipe at the same time using the head pipe outer race press shaft [A] and the drivers.

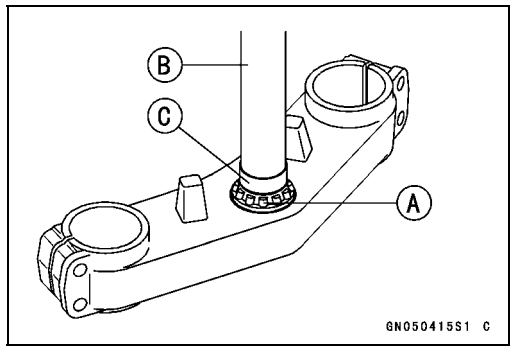
Special Tool - Head Pipe Outer Race Press Shaft: 57001 -1075
Head Pipe Outer Race Driver, ϕ51.5: 57001 -1076 [B]
Head Pipe Outer Race Driver, ϕ54.5: 57001 -1077 [C]



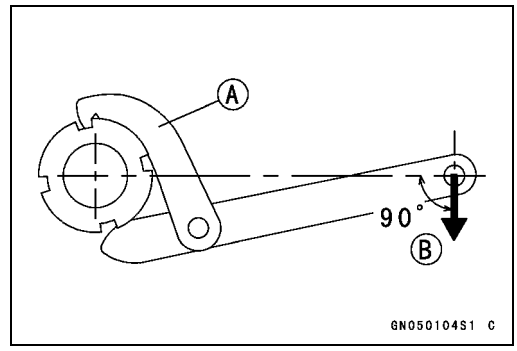
● Replace the lower inner races with new ones.

○Apply grease to the lower tapered roller bearing [A], and drive it onto the stem using the steering stem bearing driver [B] and adapter [C].

Special Tool - Steering Stem Bearing Driver: 57001-137
Steering Stem Bearing Driver Adapter, ϕ34.5: 57001-1074



Steering



- Apply grease to the upper inner race, and install it in the head pipe.
- Install the stem through the head pipe and upper bearing, install the stem cap and hand-tighten the locknut while pushing up on the stem base.
- Install the stem head and washer, and tighten the stem head nut lightly.
- Settle the bearing in place as follows;

○Tighten the stem locknut to 39 N·m (4.0 kgf·m, 29 ft·lb) of torque. (To tighten the steering stem locknut to the specified torque, hook the wrench [A] on the stem locknut, and pull the wrench at the hole by 22.2 kg force [B] in the direction shown.)

Special Tool - Steering Stem Nut Wrench: 57001-1100

○Check that there is no play and the steering stem turns smoothly without rattles. If not, the steering stem bearings may be damaged.

○Again back out the stem locknut a fraction of a turn until it turns lightly.

○Turn the stem locknut lightly clockwise until it just becomes hard to turn. Do not overtighten, or the steering will be too tight.

Torque - Steering Stem Locknut: 4.9 N·m (0.5 kgf·m, 43 in·lb)

- Install the front fork (see the Suspension chapter).

NOTE

○*Tighten the fork upper clamp bolts first, next the stem head nut, last the fork lower clamp bolt.*

Torque - Steering Stem Head Nut: 78 N·m (8.0 kgf·m, 58 ft·lb)
Front Fork Clamp Bolts: Upper: 20 N·m (2.0 kgf·m, 14.5 ft·lb)
Lower: 20 N·m (2.0 kgf·m, 14.5 ft·lb)

NOTE

○*Tighten the two clamp bolts alternately two times to ensure even tightening torque.*

- Install the parts removed (see the appropriate chapter).

⚠ WARNING

Do not impede the handlebar turning by routing the cables, wires and hoses improperly (see the General Information chapter).

- Check and Adjust:
  Steering
  Front Brake
  Clutch Cable
  Throttle Cable

Steering Maintenance

Stem Bearing Lubrication

- Refer to the Stem Bearing Lubrication in the Periodic Maintenance chapter.

Stem Bearing Wear, Damage

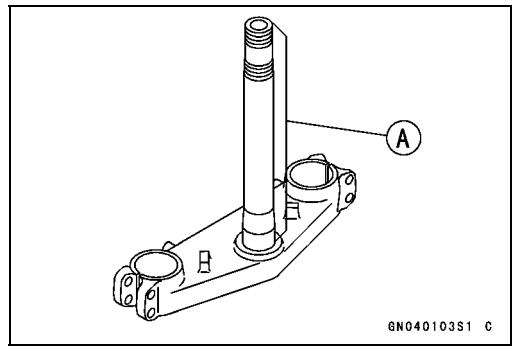
- Using a high-flash point solvent, wash the upper and lower tapered rollers in the cages, and wipe the upper and lower outer races, which are press-fitted into the frame head pipe, clean off grease and dirt.
- Visually check the outer rase and the rollers.

★Replace the bearing assembly if it show damage.

Stem Warp

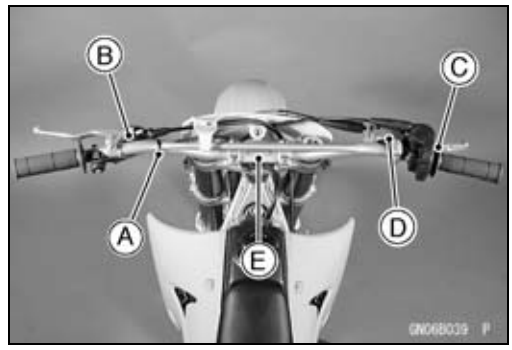
- Whenever the steering stem is removed, or if the steering cannot be adjusted for smooth action, check the steering stem for straightness.

★If the steering stem shaft is bent [A], replace the steering stem.



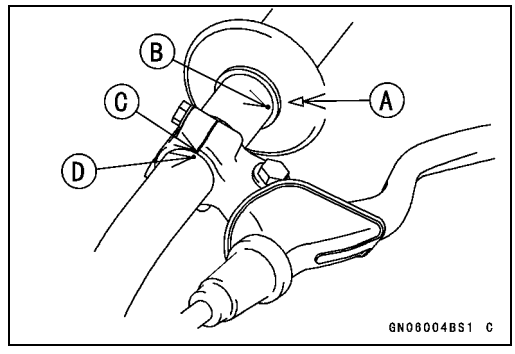
Handlebar

Handlebar Removal

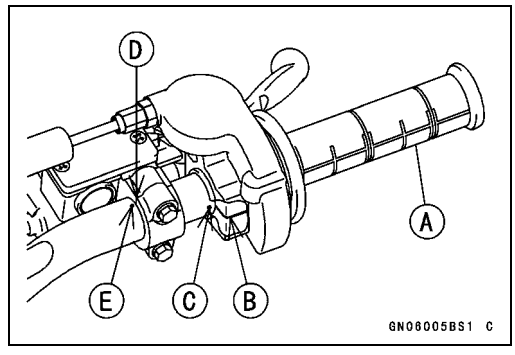


- Disconnect the engine stop switch connector.
- Remove:
  Band [A]
  Clutch Lever Holder [B]
  Throttle Grip Assembly [C]
  Master Cylinder [D]
  Handlebar Clamp [E]

Handlebar Installation



- Apply adhesive cement to the inside of the left handlebar grip.
- Install the left handlebar grip so that the arrow [A] on the grip point to the punch mark [B] on the handlebar.
- Install the clutch holder sot that the parting line [C] of the holder with punch mark [D] on the handlebar.



- Apply grease to the throttle cable upper end and clutch cable upper end.
- Apply a engine oil to the throttle grip inner wall.
- Install the throttle grip assembly so that the grip [A] is in as far as it will go.

○Position the throttle grip assembly so that the horizontal parting line [B] of the throttle case is aligned with punch mark [C] on the handlebar.

○Install the master cylinder so that the vertical parting line [D] of the front master cylinder clamps with punch mark [E] on the handlebar.

- Install the handlebar clamp (see Steering Adjustment in Periodic Maintenance chapter).

Torque - Handlebar Clamp Bolts: 25 N·m (2.5 kgf·m, 18 ft·lb)

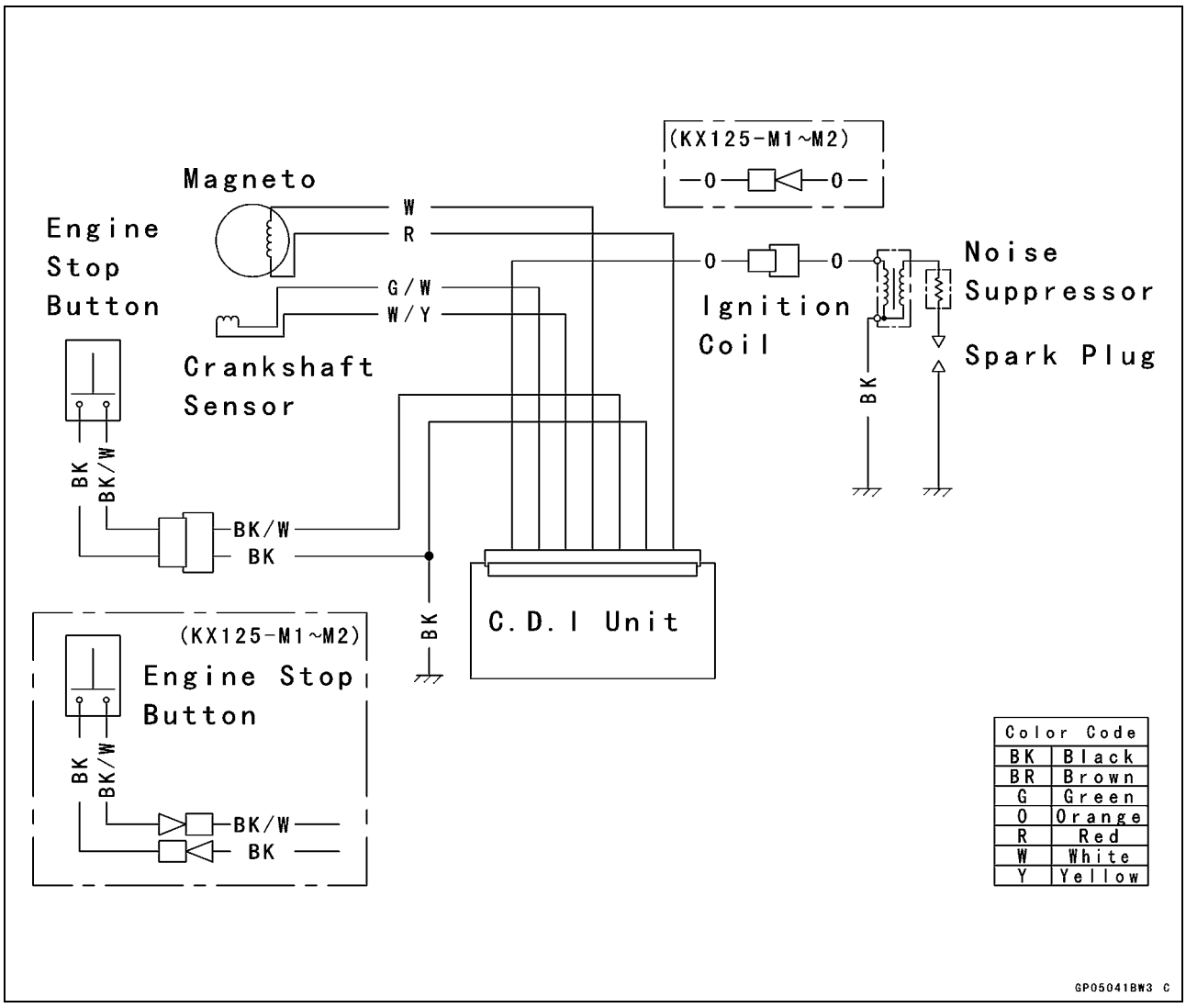
Electrical System

Table of Contents

Wiring Diagram 14-2
Exploded View 14-4
Specifications 14-6
Special Tools 14-7
Precautions 14-8
Electrical Wiring 14-9
  Wiring Inspection 14-9
Ignition Timing 14-10
  Ignition Timing Adjustment 14-10
Flywheel Magneto 14-12
  Flywheel Magneto Removal 14-12
  Flywheel Magneto Installation 14-13
  Flywheel Magneto Inspection 14-14
  Regulator/Rectifier Removal (KX250) 14-16
  Regulator/Rectifier Output Voltage Inspection (KX250) 14-16
  Regulator/Rectifier Inspection (KX250) 14-17
Ignition System 14-18
  Safety Instructions: 14-18
  Ignition Coil Removal 14-18
  Ignition Coil Inspection 14-18
  Spark Plug Cleaning and Inspection 14-19
  Spark Plug Gap Inspection 14-19
  C.D.I Unit Removal 14-19
  C.D.I Unit Inspection 14-20
  Throttle Sensor Output/Input Voltage Check: (KX250) 14-24
  Engine Stop Switch Electric Current Check: 14-25
  Crankshaft Sensor Inspection 14-25
  Crankshaft Sensor Air Gap Adjustment 14-25
Throttle Sensor 14-26
  Throttle Sensor Inspection (KX250) 14-26
  Throttle Sensor Position Adjustment (KX250) 14-26
Fuel Cut Valve 14-27
  Fuel Cut Valve Removal (KX250) 14-27
  Fuel Cut Valve Installation (KX250) 14-27
  Fuel Cut Valve Inspection (KX250) 14-27

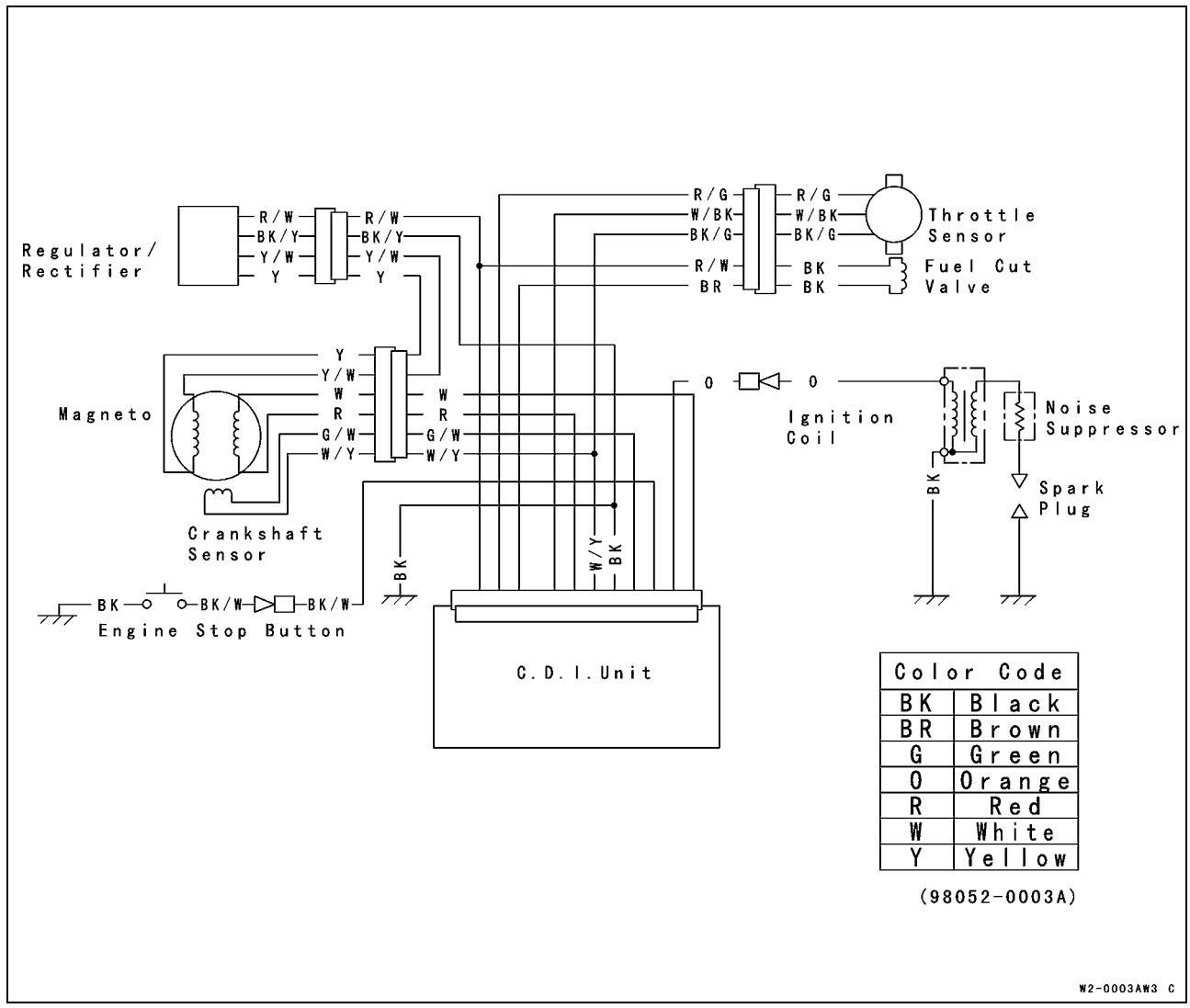
Wiring Diagram

KX125M:



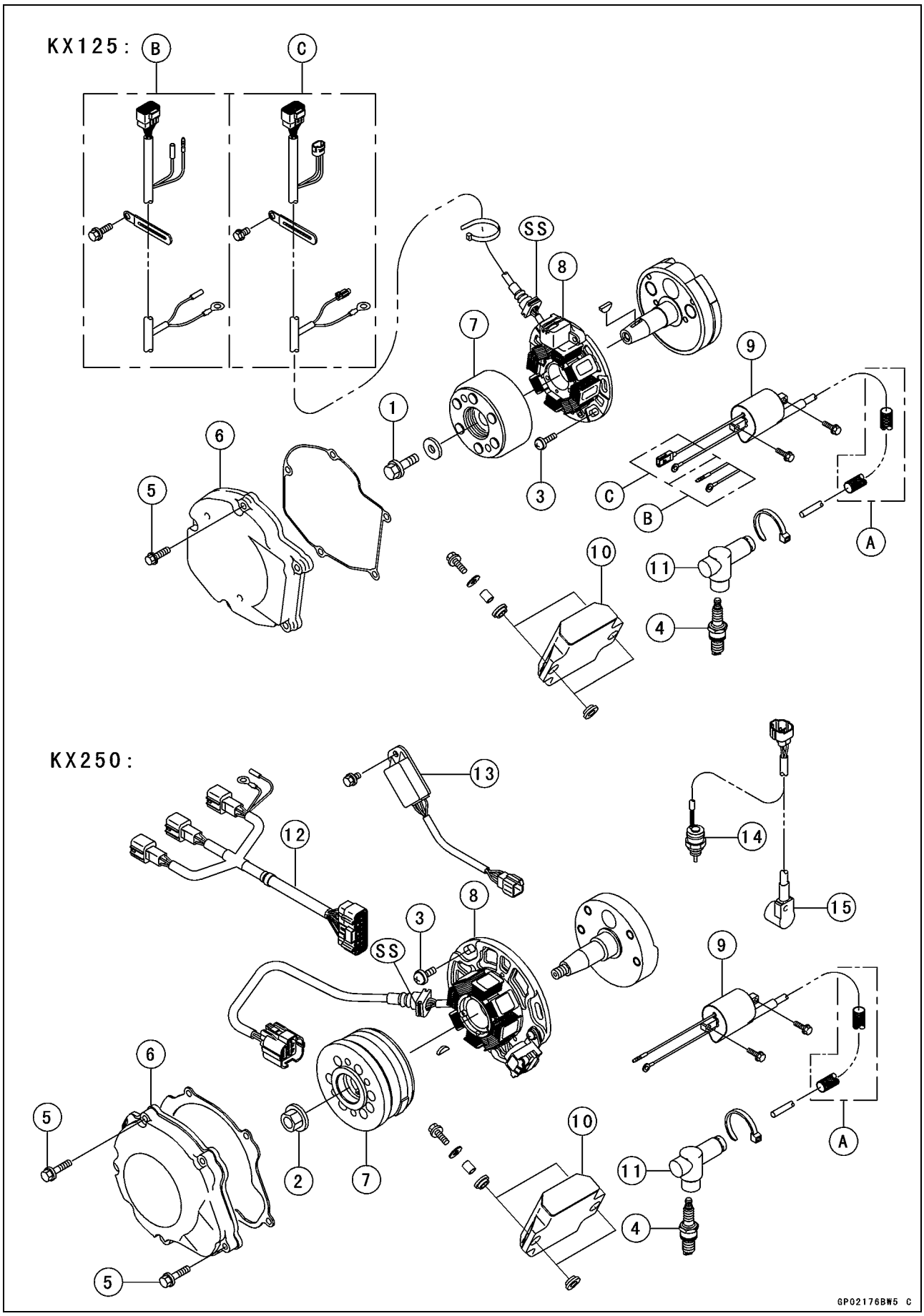
Wiring Diagram

KX250M:



Exploded View

KX125/250:



Exploded View

No	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Flywheel Bolt (KX125)	22	2.2	16.0	
2	Flywheel Nut (KX250)	78	8.0	58	
3	Stator Plate Mounting Screw	4.4	0.45	39 in·lb	
4	Spark Plug	26.5	2.75	19.5	
5	Magneto Cover Bolts	4.9	0.5	43 in·lb	
	Magneto Cover Bolts (KX125/250-M2~)	3.9	0.4	35 in·lb	

6. Magneto Cover
7. Flywheel Magneto
8. Stator
9. Ignition Coil
10. C.D.I Unit
11. Spark Plug Cap
12. Main Harness (KX250)
13. Regulator/Rectifier (KX250)
14. Fuel Cut Valve (KX250)
15. Throttle Sensor (KX250)

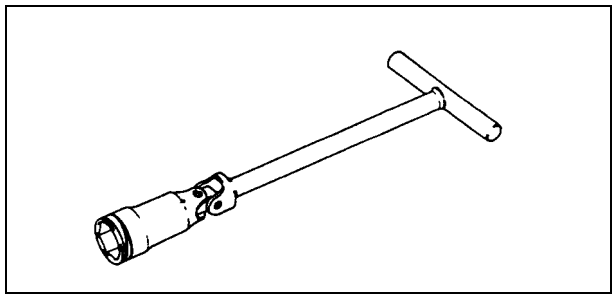
SS: Apply Silicon Sealant
A: KX125/250-M2 Model ~
B: KX125-M1 ~ M2 Model
C: KX125-M3 Model ~

Specifications

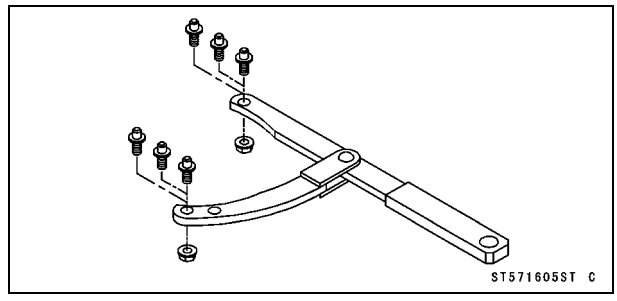
Item	Standard
Magneto	
Crankshaft Sensor Air Gap:	0.63 ~ 0.67 mm (0.025 ~ 0.026 in.)
Crankshaft Sensor Resistance:	180 ~ 280 Ω
Magneto Output Voltage:	in the text
Magneto Coil Resistance:	in the text
Regulator/Rectifier (KX250):	
Internal Resistance	in the text
Out Put Voltage	14.7 ±0.5 V
Ignition System	
Ignition Timing:	
KX125	13° BTDC @10 010 r/min (rpm)
KX250	14° BTDC @7 740 r/min (rpm)
(Disconnect the throttle sensor lead)	
Ignition Coil:	
3 Needle Arcing Distance	7 mm (0.26 in.) or more
Primary Winding Resistance:	
KX125	0.24 ±0.04 Ω (at 20°C)
KX250	0.53 ±0.08 Ω (at 20°C)
Secondary Winding Resistance:	
KX125	8.3 ±1.2 kΩ (at 20°C)
KX250	12.6 ±1.9 kΩ (at 20°C)
Spark Plug:	
Type	
KX125-M1	NGK BR9EIX
KX125-M2~	NGK R6918B-9
KX250	NGK BR8EIX
Gap	0.7 ~ 0.8 mm (0.026 ~ 0.031 in.)
C.D.I. Unit	in the text
Noise Suppressor Resistance	3.75 ~ 6.25 Ω
Throttle Sensor: (KX250)	
Input Voltage	around 5 V
Output Voltage:	
(when the throttle valve completely closed).	0.4 ~ 0.6 V
(when the throttle fully opened).	3.5 ~ 3.7 V
Fuel Cut Valve: (KX250)	
Resistance	49.7 ~ 56.2 Ω
Protrusion:	
When Battery is Disconnected	19.4 ~ 19.6 mm (0.76 ~ 0.77 in.)
When Battery is Connected	21.3 ~ 21.7 mm (0.84 ~ 0.85 in.)

Special Tools

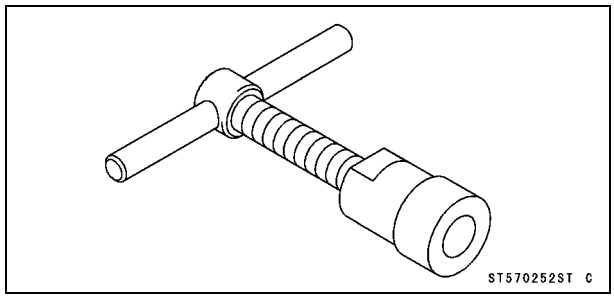
Spark Plug Wrench, Hex 21:
57001-110



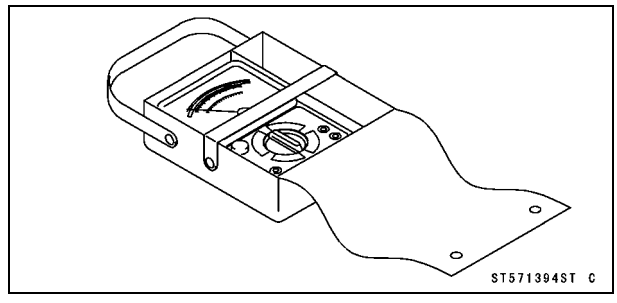
Flywheel & Pulley Holder:
57001-1605



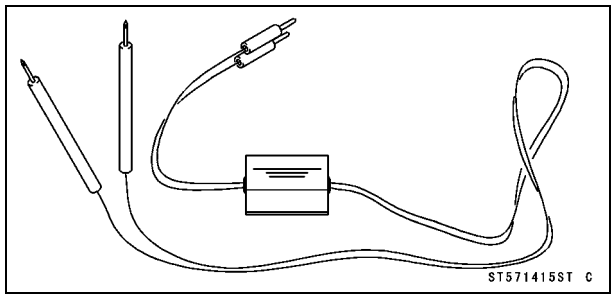
Flywheel Puller, M12 × 1.75:
57001-252



Hand Tester:
57001-1394



Peak Voltage Adapter:
57001-1415

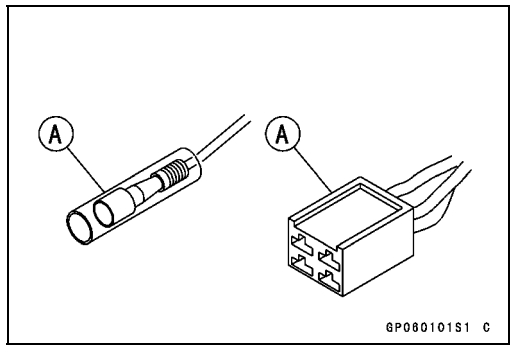


Precautions

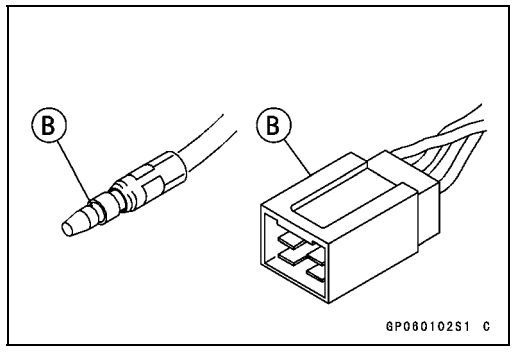
There are numbers of important precautions that are musts when servicing electrical systems. Learn and observe all the rules below.

- ○The electrical parts should never be struck sharply, as with a hammer, or allowed to fall on a hard surface. Such a shock to the parts can damage them.
- ○Troubles may involve one or in some cases all items. Never replace a defective part without determining what CAUSED the failure. If the failure was caused by some other item or items, they too must be repaired or replaced, or the new replacement will soon fail again.
- ○Make sure all connectors in the circuit are clean and tight, and examine wires for signs of burning, fraying, etc. Poor wires and bad connections will affect electrical system operation.
- ○Measure coil and winding resistance when the part is cold (at room temperature).
- ○Electrical Connectors

[A] Female Connectors



[B] Male Connectors



Safety Instructions:

⚠ WARNING

The ignition system produces extremely high voltage. Do not touch the spark plug, high tension coil, or spark plug lead while the engine is running, or you could receive a severe electrical shock.

Electrical Wiring

Wiring Inspection

- Visually inspect the wiring for signs of burning, fraying, etc.

★If any wiring is poor, replace the damaged wiring.

- Pull each connector [A] apart and inspect it for corrosion, dirt, and damage.

★If the connector is corroded or dirty, clean it carefully. If it is damaged, replace it.

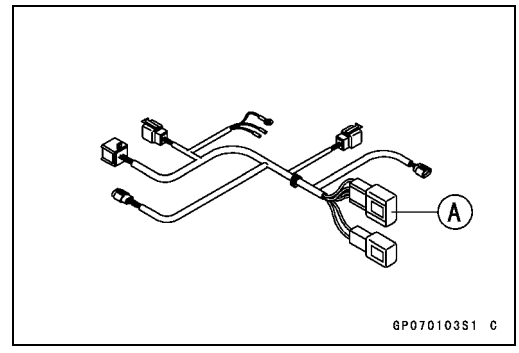
- Check the wiring for continuity.

○Use the wiring diagram to find the ends of the lead which is suspected of being a problem.

○Connect an ohmmeter between the ends of the leads.

○Set the meter to the x 1 Ω range, and lead the meter.

★If the meter does not read 0 Ω the lead is defective. Replace the lead or the wiring harness if necessary.



Ignition Timing

Ignition Timing Adjustment

- Remove the magneto cover.
- Check to see if the center mark of the three marks [A] on the magneto stator is aligned with the mark [B] on the crankcase.

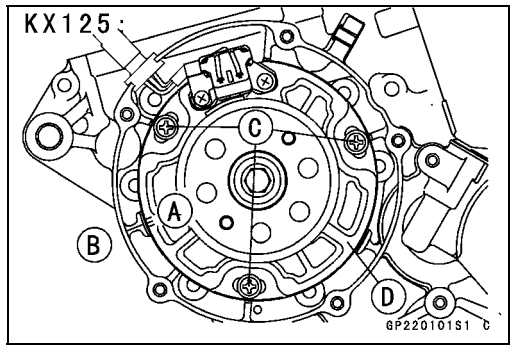
★If the marks are not aligned, loosen the magneto stator screws [C] and turn the magneto stator [D].

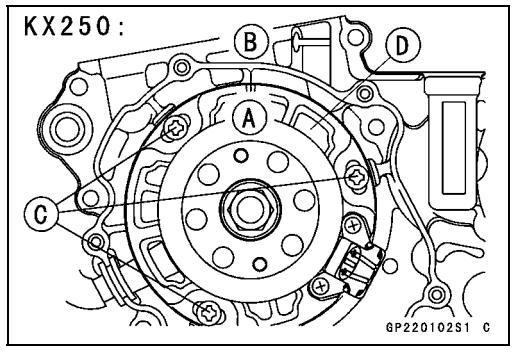
- Tighten the screws securely.

Torque - Stator Plate Mounting Screws: 4.4 N·m (0.45 kgf·m, 39 in·lb)

- Install the magneto cover.

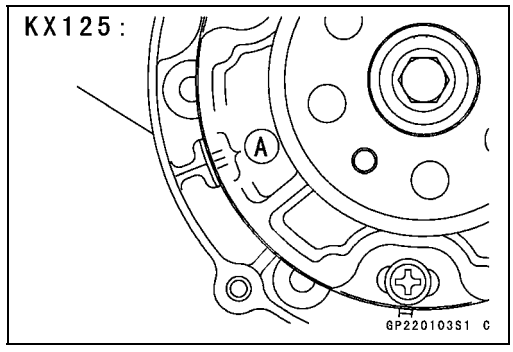
Torque - Magneto Cover Bolts: 4.9 N·m (0.5 kgf·m, 43 in·lb)
Magneto Cover Bolts (KX125/250-M2 ~): 3.5 N·m (0.4 kgf·m, 35 in·lb)

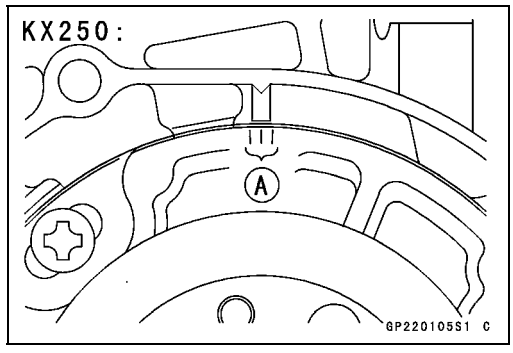




The ignition timing can be adjusted for different power band to suit to rider's preference ability.

- Remove the magneto cover.
- Loosen the stator screws.
- Adjust the timing by shifting the stator position within the three lines [A].



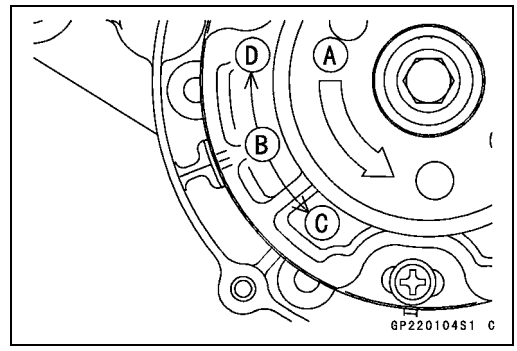


Ignition Timing

NOTE

○*For best engine performance, it is very important to adjust the ignition timing within the adjustable range just explained.*

[A] Crankshaft Rotation
[B] Stator Movement
[C] Retard
[D] Advance



- Tighten the stator screws securely (see Igniting Timing Adjustment).
- Install the magneto cover (see Ignition Timing Adjustment).

Torque - Magneto Cover Bolts: 4.9 N·m (0.5 kgf·m, 43 in·lb)
Magneto Cover Bolts (KX125/250-M2 ~): 3.5 N·m (0.4 kgf·m, 35 in·lb)

- Test ride the motorcycle and readjust the ignition timing if necessary.

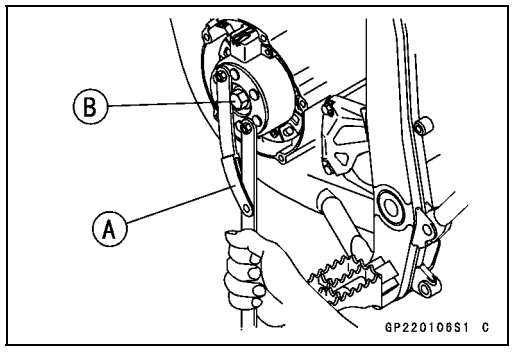
Flywheel Magneto

Flywheel Magneto Removal

- Remove the magneto cover.
- Hold the flywheel steady, with the flywheel holder [A], and remove the flywheel bolt (KX125) or nut (KX250) [B].

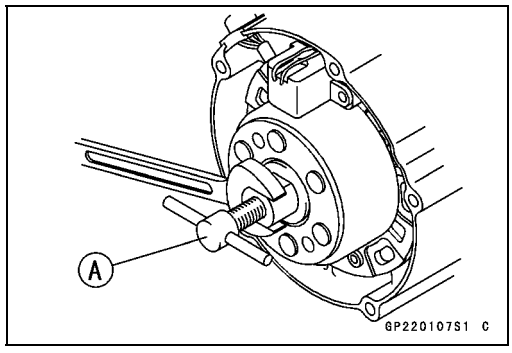
Special Tool - Flywheel & Pulley Holder: 57001-1605

- Remove the flywheel holder.



- Screw the flywheel puller [A] into the flywheel by turning it counterclockwise (left-hand thread).
- Remove the flywheel from the crankshaft by turning in the puller center bolt and tapping the head of the bolt lightly with a hammer, while holding the puller body steady. There is a woodruff key in the crankshaft tapered portion.

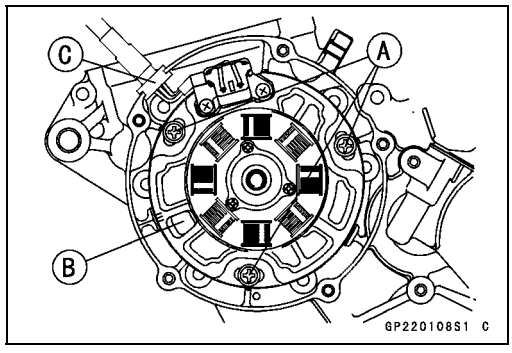
Special Tool - Flywheel Puller, M12 × 1.75: 57001-252



CAUTION

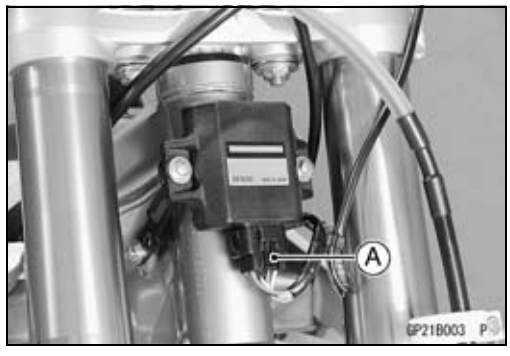
Never strike the grab bar or the flywheel itself. Striking the bar can bend it. If the flywheel is strike, the magnets may lose their magnetism.

- Unscrew the mounting screws [A], and remove the stator plate [B] and the wiring grommet [C].
- Remove the band.



KX125:

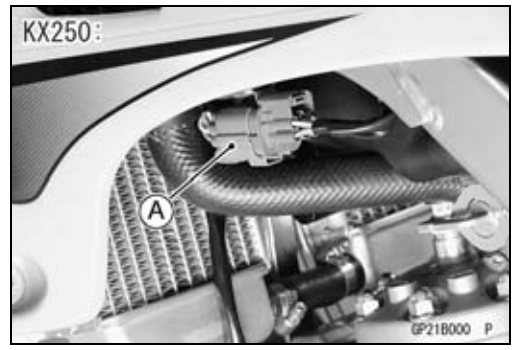
- Remove the number plate.
- Disconnect the magneto lead connector [A] from the C.D.I unit.



Flywheel Magneto

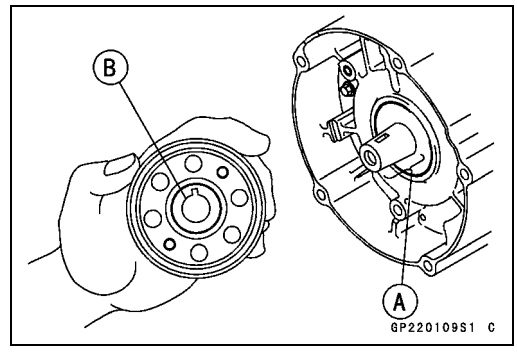
KX250:

- Remove the left radiator shroud.
- Disconnect the magneto lead connector [A] from the main harness.

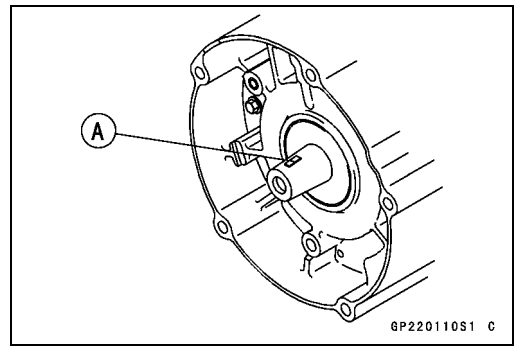


Flywheel Magneto Installation

- Using a high-flash point solvent, clean off any oil or dirt that may be on the crankshaft taper [A] or in the hole [B] in the flywheel. Dry them with a clean cloth.

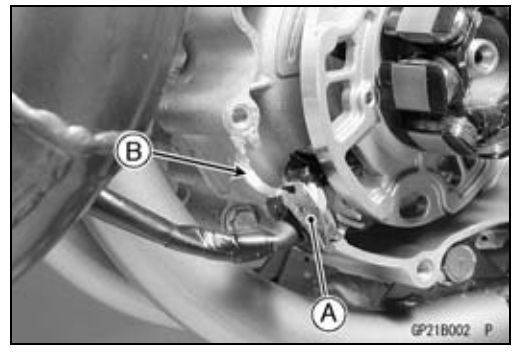


- Fit the woodruff key [A] securely in the slot in the crankshaft before installing the stator plate.



- Apply silicone sealant around the circumference of the wiring grommet.
- Set the stator wiring grommet [A] securely in the notch [B] in the left crankshaft half, and route the wires according to the Cable, Harness, Hose Routing section in the Appendix chapter.
- Install the stator plate and tighten it.

Torque - Stator Plate Mounting Screws: 4.4 N·m (0.45 kgf·m, 39 in·lb)



- Holding the flywheel steady, with the flywheel holder, and tighten the flywheel bolt (KX125) or nut (KX250).

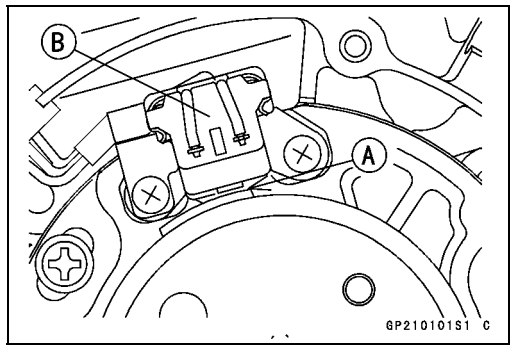
Special Tool - Flywheel & Pulley Holder: 57001-1605

Torque - Flywheel Bolt (KX125): 22 N·m (2.2 kgf·m, 16 ft·lb)
Flywheel Nut (KX250): 78 N·m (8.0 kgf·m, 58 ft·lb)

Flywheel Magneto

- Measure the crankshaft sensor air gap [A] (Clearance between the flywheel and the crankshaft sensor [B] core.)

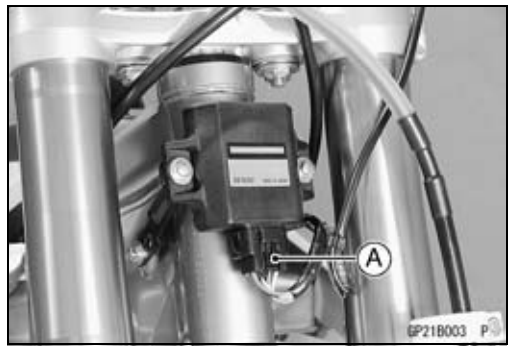
Crankshaft Sensor Air Gap
Standard: 0.63 ~ 0.67 mm (0.025 ~ 0.026 in.)

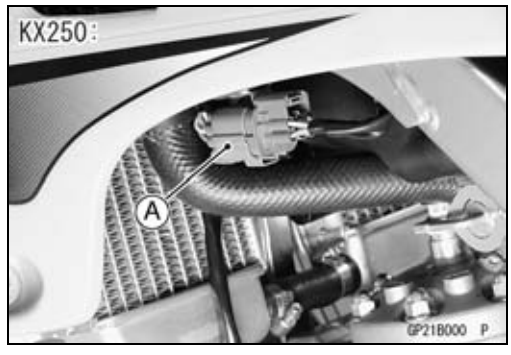


★If the gap is incorrect, adjust it (see this chapter).
- Replace the gasket with a new one.
- Connect the magneto lead connector to the C.D.I. unit (KX125) or main harness (KX250).

Flywheel Magneto Inspection
- There are three types of magneto problems: short, open (wire burned out), or loss in flywheel magnetism. A short or open in one of the coil wires will result in either a low output, or no output at all. A loss in flywheel magnetism, which may be caused by dropping or hitting the flywheel by leaving it near an electromagnetic field, or just by aging, will result in low output.
- Check the magneto output voltage, do the following procedures.

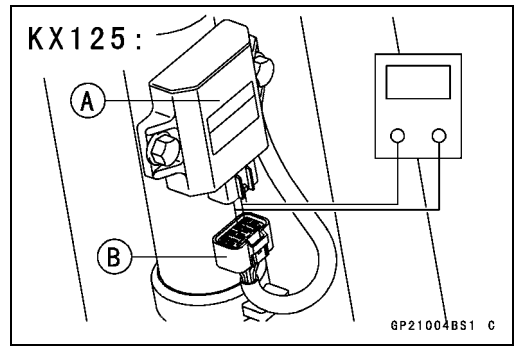
○Disconnect the magneto lead connector [A].





Flywheel Magneto

○Connect the auxiliary leads between the C.D.I unit [A] (KX125) or main harness connector [A] (KX250) and the magneto lead connector [B].
○Connect the hand tester as shown in the table 1.
○Start the engine.
○Run it at the rpm given in the table 1.
○Note the voltage readings (total 2 measurements).



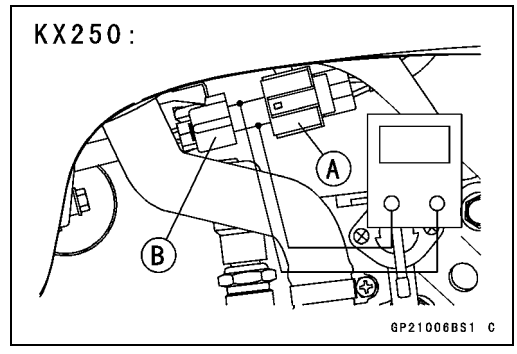


Table 1 Magneto Output Voltage
(1) KX125

Tester Range	Connections		Reading
	Tester (+) to	Tester (-) to	@4 000 rpm
250 V AC	White lead	Red lead	80 V or more

(2) KX250

Tester Range	Connections		Reading
	Tester (+) to	Tester (-) to	@ 4 000 rpm
250V AC	White lead	Red lead	59 V or more
50 V AC	Yellow/White lead	Yellow lead	16 V or more

★If the output voltage shows the value in the table, the magneto operates properly.
★If the output voltage shows a much higher than the value in the table, the regulator/rectifier is damaged. A much lower reading than that given in the table indicates that the magneto is defective.
● To check the stator coil resistance as follows.
○Stop the engine.
○Disconnect the auxiliary leads.
○Connect the hand tester as shown in the table 2.
○Note the readings (total 2 measurement).

(1) KX125

Tester Range	Connections		Reading
	Tester (+) to	Tester (-) to	
x 1Ω	White lead	Red lead	10 ~ 30 Ω

(2) KX250

Tester Range	Connections		Reading
	Tester (+) to	Tester (-) to	
× 1Ω	White lead	Red lead	10 ~ 30 Ω
	Yellow/White lead	Yellow lead	1 ~ 4Ω

Flywheel Magneto

★If there is more resistance than shown in the table, or no hand tester reading (infinity) the stator has an open lead and must be replaced. Much less than this resistance means the stator is shorted, and must be replaced.
- Using the highest resistance range of the hand tester, measure the resistance between each leads and chassis ground.

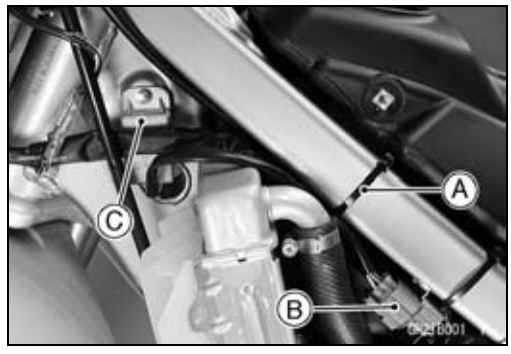
★Any hand tester reading less than infinity (∞) indicates a short, necessitating stator replacement.

★If the stator coils have normal resistance, but the voltage check showed the magneto to be defective; then the rotor magnets have probably weakened, and the rotor must be replaced.

Special Tool - Hand Tester: 57001-1394

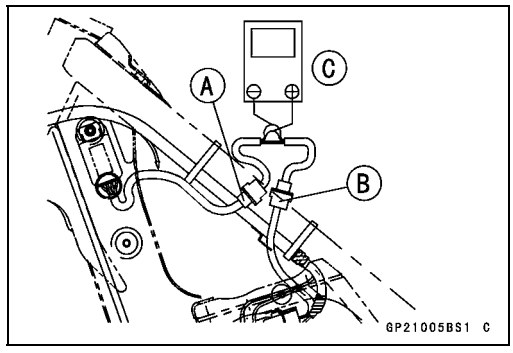
Regulator/Rectifier Removal (KX250)

- Remove:
  Left Radiator Shroud
  Band [A]
- Disconnect the regulator/rectifier lead connector [B].
- Unscrew the mounting bolt, and remove the regulator/rectifier [C].



Regulator/Rectifier Output Voltage Inspection (KX250)

- Warm up the engine to obtain actual magneto operating conditions.
- Stop the engine, and disconnect the regulator/rectifier lead connector.
- Using an auxiliary leads, connect the regulator/rectifier connector [A] and main harness connector [B].
- Connect the hand tester [C] as shown in the table.
- Start the engine, and note the voltage readings at various engine speeds. The readings should show under the specified voltage when the engine speed is low and, as the engine speed rises, the readings should also rise.



Flywheel Magneto

Regulator/Rectifier Output Voltage

Tester Range	Connections		Reading
	Tester (+)	Tester (-) to	
25 V DC	Red/White	Black/Yellow	14.2 ~ 15.2 V

- Push off the stop switch to stop the engine, and disconnect the hand tester.

★If the regulator/rectifier output voltage is kept between the values given in the table, the charging system is considered to be working normally.

★If the output voltage is much higher than the values specified in the table, the regulator/rectifier is defective or the regulator/rectifier leads are loose or open.

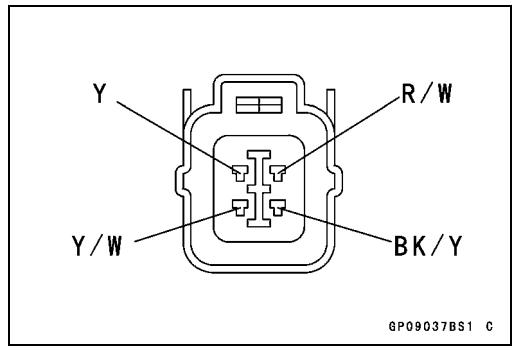
★If the output voltage does not rise as the engine speed increases, then the regulator/rectifier is defective or the magneto output is insufficient for the loads. Check the magneto and regulator/rectifier to determine which part is defective.

Regulator/Rectifier Inspection (KX250)

- Remove the regulator/rectifier.
- Set the hand tester x 100 Ω range, measure the internal resistance in both directions between the terminals.

Special Tool - Hand Tester: 57001-1394

★If the reading is not specified value, replace the regulator/rectifier.



Internal Resistance **Unit: Ω**

		Tester (+) Lead			
	Terminal	R/W	Y	Y/W	BK/Y
(-)*	R/W	—	500 ~ 5K	500 ~ 5K	300 ~ 3K
	Y	500 ~ 5K	—	500 ~ 50K	500 ~ 5K
	Y/W	500 ~ 5K	500 ~ 50K	—	500 ~ 5K
	BK/Y	300 ~ 3K	200 ~ 20K	200 ~ 20K	—

(-)*: Tester (-) Lead Connection

CAUTION

Use only Hand Tester 57001-1394 for this test. An ohmmeter other than the Hand Tester may show different readings. If a megger or a meter with a large-capacity battery is used, the regulator will be damaged.

Ignition System

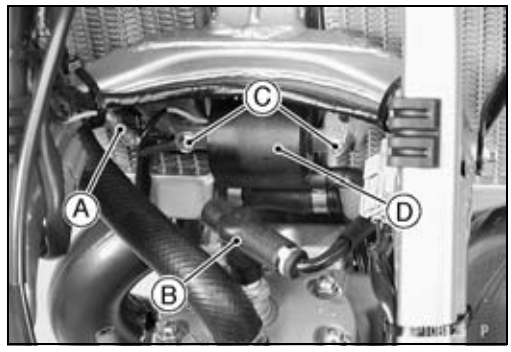
Safety Instructions:

⚠ WARNING

The ignition system produces extremely high voltage. Do not touch the spark plug, high tension coil, or spark plug lead while the engine is running, or you could receive a severe electrical shock.

Ignition Coil Removal

- Remove:
  Seat
  Radiator Shrouds
  Fuel Tank
- Disconnect the ignition coil primary lead [A].
- Pull the plug cap [B] off the spark plug.
- Unscrew the mounting bolts [C], and remove the ignition coil [D].

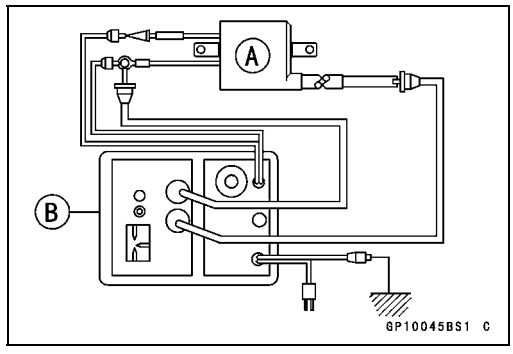


Ignition Coil Inspection

Measuring arcing distance

The most accurate test for determining the condition of the ignition coil is made by measuring arcing distance using the coil tester for the 3-needle method.

- Remove the ignition coil.
- Connect the ignition coil (with the spark plug cap left installed on the spark plug lead) [A] to the tester [B], and measure the arcing distance.



⚠ WARNING

To avoid extremely high voltage shocks, do not touch the coil or lead.

★If the distance reading is less than the specified value, the ignition coil or spark plug cap is defective.

3 Needle Arcing Distance
Standard: 7 mm (0.26 in.) or more

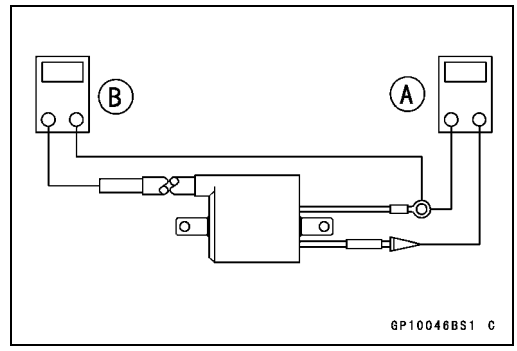
- To determine which part is defective, measure the arcing distance again with the spark plug cap removed from the ignition coil lead.

★If the arcing distance is subnormal as before, the trouble is with the ignition coil itself. If the arcing distance is now normal, the trouble is with the spark plug cap.

Ignition System

Measuring Coil Resistance

If the arcing tester is not available, the coil can be checked for a broken or badly shorted winding with an ohmmeter. However, an ohmmeter cannot detect layer shorts and shorts resulting from insulation breakdown under high voltage.



- Remove the ignition coil.
- Measure the primary winding resistance [A].

○Connect an ohmmeter between the coil terminals.
○Set the meter to the x 1 Ω range, and read the meter.

- Measure the secondary winding resistance [B].

○Pull the spark plug cap off the lead.
○Connect an ohmmeter between the spark plug lead and the ground lead terminal.
○Set the meter to the x 1 kΩ range, and read the meter.
★If the meter does not read as specified, replace the coil.
★If the meter reads as specified, the ignition coil windings are probably good. However, if the ignition system still does not perform as it should after all other components have been checked, test replace the coil with one known to be good.

Ignition Coil Winding Resistance

Primary windings:	
KX125	**0.24 ±0.04 Ω (at 20°C)**
KX250	**0.53 ±0.08 Ω (at 20°C)**
Secondary windings:	
KX125	**8.3 ±1.2 kΩ (at 20°C)**
KX250	**12.6 ±1.9 kΩ (at 20°C)**

- Check the spark plug lead for visible damage.

★If the spark plug lead is damaged, replace the coil.

Spark Plug Cleaning and Inspection

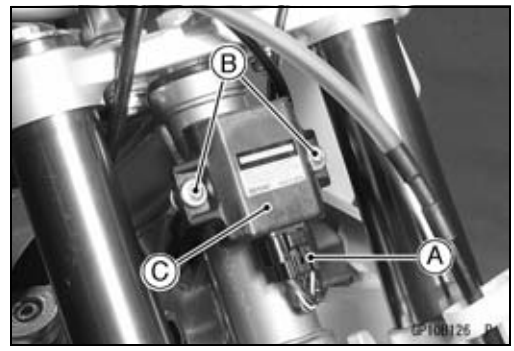
- Refer to the Spark Plug Cleaning and Inspection in the Periodic Maintenance chapter.

Spark Plug Gap Inspection

- Refer to the Spark Plug Gap Inspection in the Periodic Maintenance chapter.

C.D.I Unit Removal

- Remove the number plate.
- Disconnect the magneto lead connector [A] (KX125) or main harness connector (KX250).
- Unscrew the mounting bolt [B] and remove the C.D.I Unit [C].



Ignition System

C.D.I Unit Inspection

CAUTION

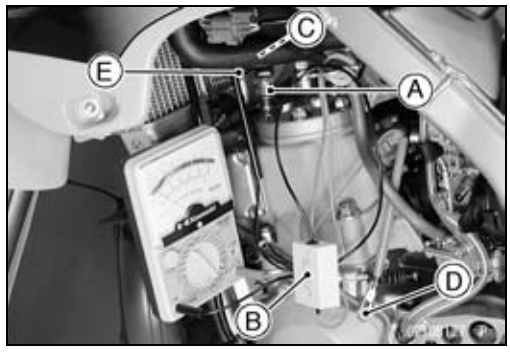
When inspecting the C.D.I. unit observe the following to avoid damage to the C.D.I. unit.
Do not disconnect the C.D.I. unit while the engine is running.
This may damage the C.D.I. unit.

Ignition Coil Primary Peak Voltage Check

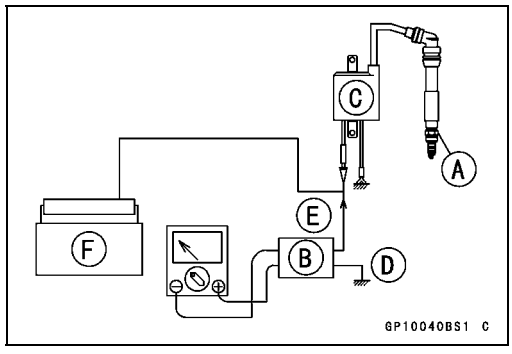
- Disconnect the spark plug cap from mounting the spark plug.
- Connect the good spark plug [A] to the spark plug cap, then touch the engine with the spark plug.

NOTE

○*Measure the voltage with each lead connected correctly. The correct value may not be obtained if disconnected.*
○*Maintain the correct value of compression pressure for the cylinder. (Be sure to measure the voltage with the spark plug install to the cylinder head.)*
○*The correct value may not be obtained if disconnected.*



- Connect the peak voltage adapter [B] between the terminal of primary lead (orange) and ground connection of the unit with the lead of the ignition coil [C] connected.



Special Tool: Peak Voltage Adapter: 57001-1415
Type: KEK-54-9-B
Connection: Tester Positive → Ground Lead [D]
Tester Negative →Orange Lead [E]

C.D.I Unit [F]

- Shift the gear to the neutral position, then free the engine stop switch.
- Crank the engine by kicking the pedal several times to measure the peak voltage of the primary ignition coil.

Peak Voltage: 200 V or above (KX125)
150 V or above (KX250)

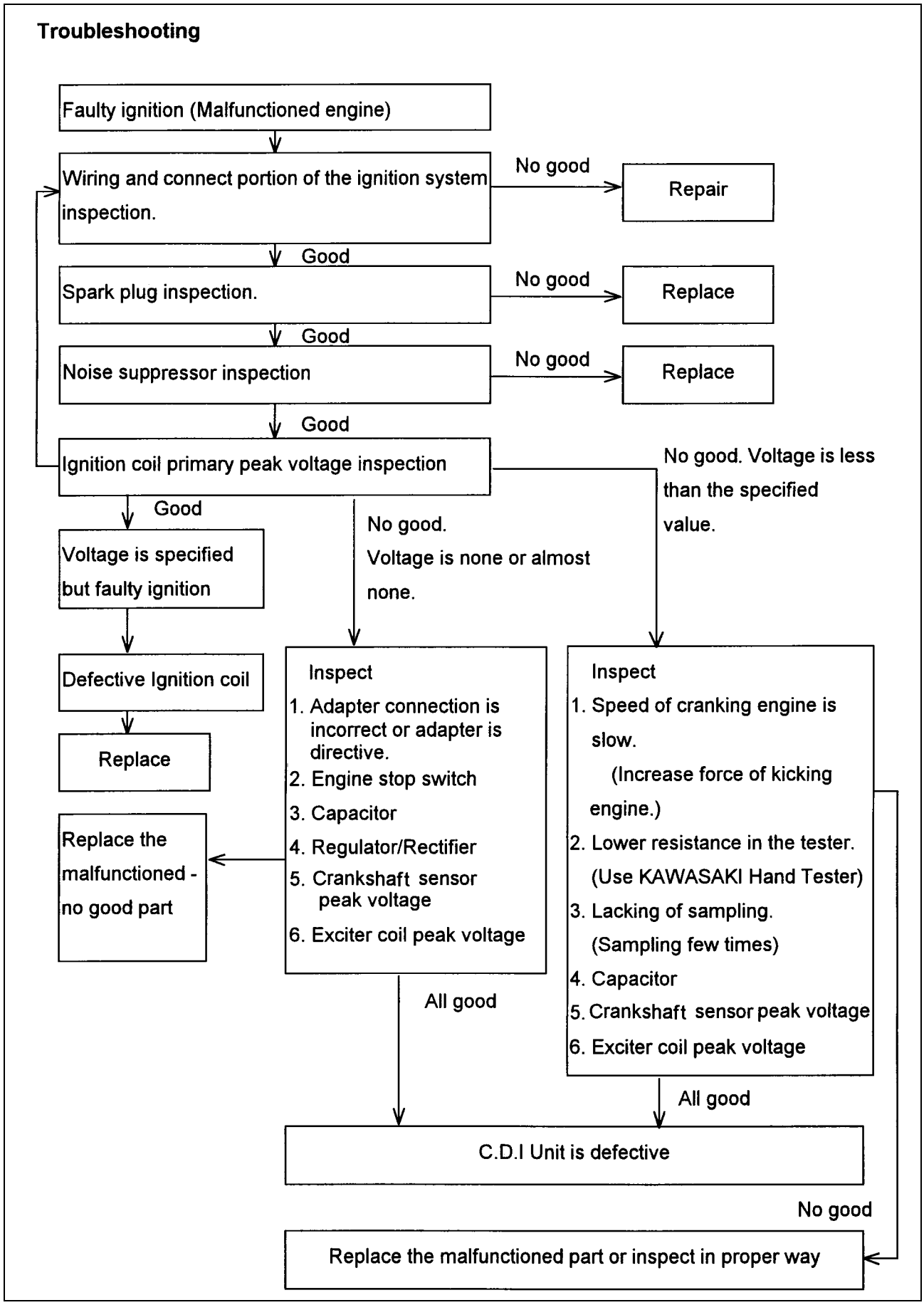
⚠ WARNING

Do not touch the metal portion of the probe in case of measuring the voltage, or you may receive a serious electric shock.

★If the voltage is less than the specified value, see the next page.

Ignition System

Troubleshooting


Faulty ignition (Malfunctioned engine)
Wiring and connect portion of the ignition system inspection.
No good
Repair
Good
Spark plug inspection.
No good
Replace
Good
Noise suppressor inspection
No good
Replace
Good
Ignition coil primary peak voltage inspection
No good. Voltage is less than the specified value.
Good
Voltage is specified but faulty ignition
No good. Voltage is none or almost none.
Defective Ignition coil
Replace
Replace the malfunctioned - no good part
Inspect
1. Adapter connection is incorrect or adapter is directive.
2. Engine stop switch
3. Capacitor
4. Regulator/Rectifier
5. Crankshaft sensor peak voltage
6. Exciter coil peak voltage
Inspect
1. Speed of cranking engine is slow. (Increase force of kicking engine.)
2. Lower resistance in the tester. (Use KAWASAKI Hand Tester)
3. Lacking of sampling. (Sampling few times)
4. Capacitor
5. Crankshaft sensor peak voltage
6. Exciter coil peak voltage
All good
All good
C.D.I Unit is defective
No good
Replace the malfunctioned part or inspect in proper way

Ignition System

Crankshaft Sensor Peak Voltage Check

● To check the peak voltage, do the following procedures.

○Disconnect the connector of the magneto lead connector from the C.D.I. unit (KX125), or the main harness (KX250).

NOTE

○*Measure the voltage with each lead connected correctly. The correct value may not be obtained if disconnected.*

○*Maintain the correct value of compression pressure for the cylinder (Be sure to measure the voltage with the spark plug installed to the cylinder head).*

○*The correct value may not be obtained if disconnected.*

○Connect the peak voltage adapter [A] of the tester to the terminals of the magneto lead connector [B].

Special Tool: **Peak Voltage Adapter: 57001-1415**
Type: KEK-54-9-B

Connection: **Adapter Positive → Green/White Lead [C]**
Adapter Negative → White/Yellow Lead [D]

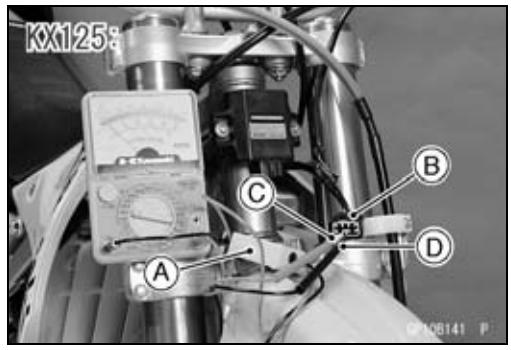
○Crank the engine by kicking the pedal several times to measure the peak voltage of the crankshaft sensor.

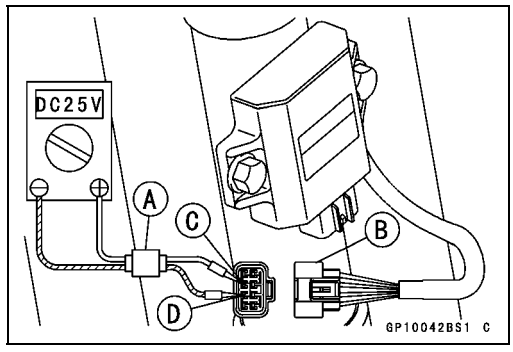
Peak Voltage: **2.4 V or above (KX125)**
1.6 V or above (KX250)

⚠ WARNING

Do not touch the metal portion of the probe in case of measuring the voltage, or you may receive a serious electric shock.

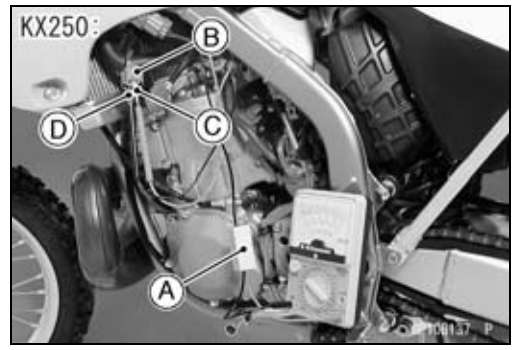
★If the voltage is less than the specified, check the crankshaft sensor.





Ignition System

Exciter Coil Peak Voltage Check



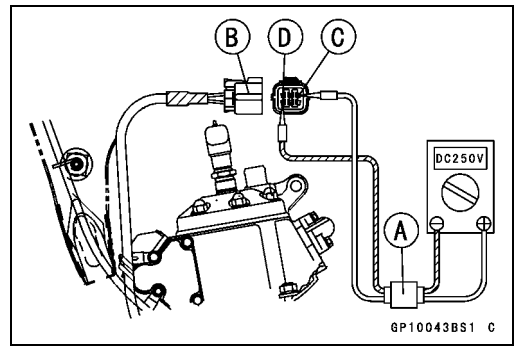
- Disconnect the connector of the magneto lead connector from the C.D.I. unit (KX125), or the main harness (KX250).
- To check the peak voltage, do the following procedures.

NOTE

○*Measure the voltage with each lead connected correctly. The correct value may not be obtained if disconnected.*

○*Maintain the correct value of compression pressure for the cylinder (Be sure to measure the voltage with the spark plug installed to the cylinder head).*

○*The correct value may not be obtained if disconnected.*



○Connect the peak voltage adapter [A] of the tester to the terminals of the magneto lead connector [B].

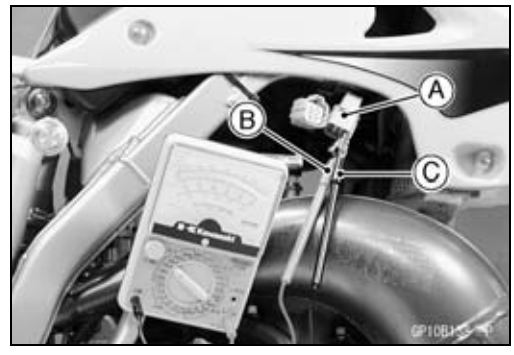
Special: Peak Voltage Adapter: 57001-1415
Type: KEK-54-9-B
Connection: Adapter Positive → White Lead [C]
Adapter Negative → Red Lead [D]

○Crank the engine by kicking the pedal several times to measure the peak voltage of the exciter coil.

Peak Voltage: 32 V or Above (KX250)
16 V or above (KX250)

★If the voltage is less than the specified, check the exciter coil.

Fuel Cut Valve Operation Check: (KX250)

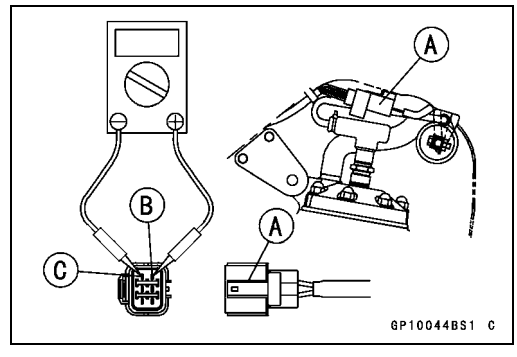


- Disconnect the carburetor lead connector [A].
- Set the tester to the DC25V range, and connect it to the carburetor lead of the main harness side.

Connections:
Tester Positive → Red/White Lead [B]
Tester Negative → Brown Lead [C]

- Start the engine.
- Run it at the rpm given below.

Fuel Cut Valve Operate Revolutions
Standard: 8 100 rpm



- Read the tester, running the engine at the specified revolution.

Fuel Cut Valve Operation Voltage:
When engine is specified revolutions or above: DC 12V
When engine is less than specified revolutions: 0V

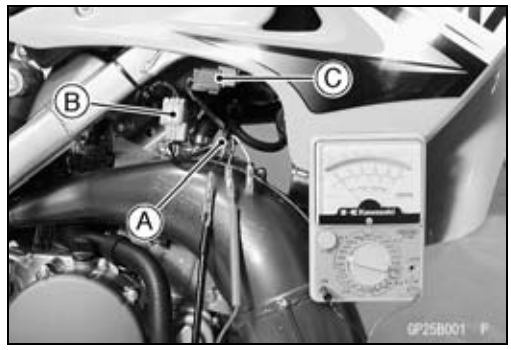
★If the tester does not read as specified, check the magneto.

★If the magneto has normal functions, replace the C.D.I. Unit.

Throttle Sensor Output/Input Voltage Check: (KX250)

NOTE

○*If the variable rheostat is available, refer to throttle sensor inspection.*



- Remove the carburetor lead connector.
- Connect the auxiliary leads [A] between carburetor lead connector [B] and main harness connector [C].
- Set the tester to the DC 10V range, and connect it to the auxiliary leads.

Hand Tester (+) → Red/Green Lead

Hand Tester (-) → Black/Green Lead

- Start the engine.
- Check the sensor input voltage with the engine running.

Throttle Sensor Input Voltage

Standard: 4 V or above

★If it is not within the specified voltage range, check the magneto output voltage. If it has normal functions, replace the C.D.I. Unit.

- To check the output voltage, do the following procedures.

○Using the auxiliary leads [A], connect the hand tester [B] as follows.

Hand Tester (+) → White/Black Lead

Hand Tester (-) → Black/Green Lead

○Remove the spark plug.

○Crank the engine by kicking the pedal several times to measure the throttle sensor output voltage with the throttle valve completely closed.

Throttle Sensor Output Voltage

Standard: 0.4 ~ 0.6 V (when throttle valve is completely closed.)

★If it is not within the specified voltage range, adjust the throttle sensor position (see Throttle Sensor Position Adjustment).

★If it is within specified voltage, go to next test.

○Crank the engine by kicking the pedal several times to measure the throttle sensor output voltage with the throttle fully opened.

Throttle Sensor Output Voltage (when the throttle fully opened)

Standard: 3.5 ~ 3.7 V

★If it is not within the specified voltage, replace the throttle sensor.

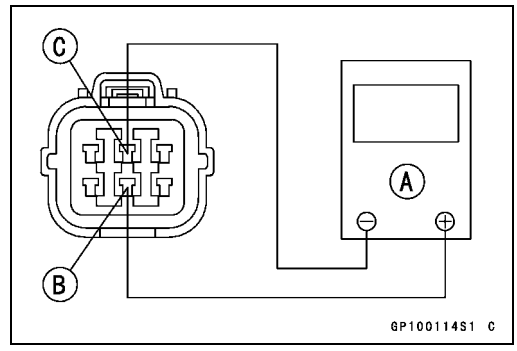
Ignition System

Engine Stop Switch Electric Current Check:
- Disconnect the engine stop switch lead.
- Start the engine.
- Ground the stop switch lead of the main harness side while the engine is running.

★If does not stop the engine, replace the C.D.I Unit.

Crankshaft Sensor Inspection
- Remove:
  Magneto Lead Connector (see Flywheel Magneto Inspection).
- Set the hand tester [A] to the × 100Ω range and connect it to the Green/White [B] and White/Yellow [C] Leads in the connector.

Special Tool - Hand Tester: 57001-1394



★If there is more resistance than the specified value, the coil has an open lead and must be replaced. Much less than this resistance means the coil is shorted, and must be replaced.

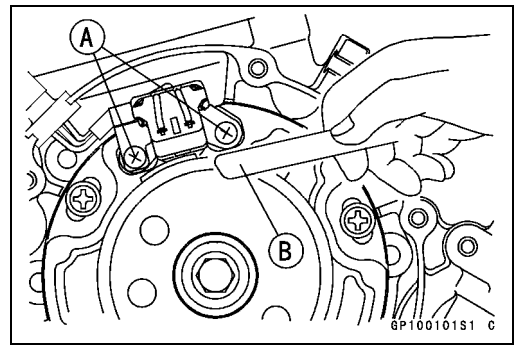
Crankshaft Sensor Resistance: 180 ~ 280 Ω

- Using the highest resistance range of the tester, measure the resistance between the crankshaft sensor leads and chassis ground.

★Any tester reading less than infinity (∞) indicates a short, necessities replacement of the crankshaft sensor assembly.

Crankshaft Sensor Air Gap Adjustment
- Loosen the crankshaft sensor screws [A].
- Insert a 0.65 mm (0.026 in.) thickness gauge [B] between the crankshaft sensor core and the timing plat.
- While pressing the crankshaft sensor toward the magneto flywheel, tighten the coil screws and remove the thickness gauge.
- Check the air gap (see Flywheel Magneto Installation).

★If the air gap is not within the specified range, readjust the gap.



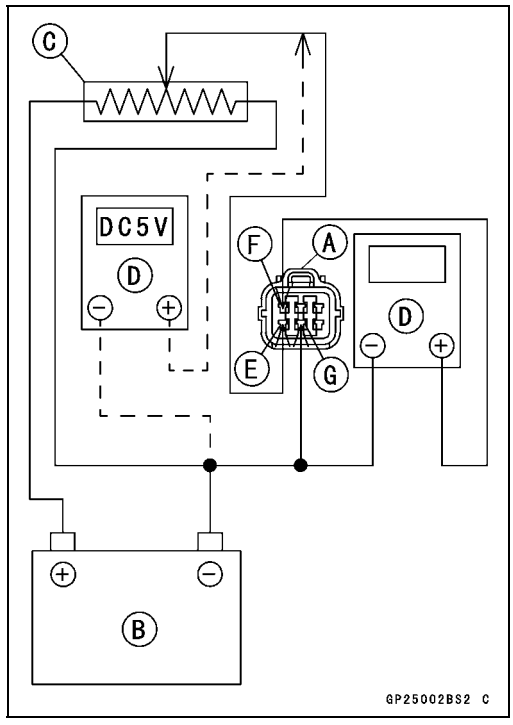
Throttle Sensor

Throttle Sensor Inspection (KX250)

NOTE

○*If the variable rheostat is not available, refer to throttle sensor output/input voltage check in the C.D.I Unit inspection.*

○*When inspecting the throttle sensor the throttle valve of the carburetor shall be completely closed and remain the throttle cable connected.*



- Remove the carburetor (see Fuel System chapter).
- Connect the carburetor lead connector [A] with the battery [B], variable rheostat [C] and hand testers [D] as shown.
  Variable Rheostat (+) → R/G Lead Terminal [E]
  Hand Tester (+) → W/BK Lead terminal [F]
  Hand Tester (-) → BK/G Lead terminal [G]
- Check the sensor input voltage.

Throttle Sensor Input Voltage
Standard: around 5 V

- Check the sensor output voltage with the throttle valve is completely closed.

Throttle Sensor Output Voltage
Standard: 0.4 ~ 0.6 V (when the throttle valve completely closed.)

★If it is not within the specified voltage, adjust the throttle sensor position (see Throttle Sensor Position Adjustment).

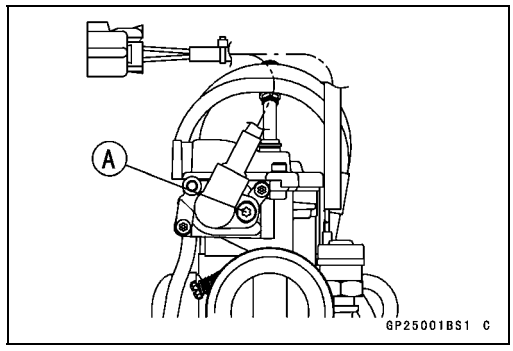
★If it is within specified voltage, go to next test.

- Check the sensor output voltage with the throttle fully opened.

Throttle sensor Output Voltage
Standard: 3.5 ~ 3.7 V (When throttle fully opened.)

★If it is not within the specified voltage, replace the sensor.

Throttle Sensor Position Adjustment (KX250)



- Remove the carburetor.
- Check the throttle valve is completely closed.
- Loosen the throttle sensor mounting bolt [A].
- Connect the carburetor lead connector with the battery, variable rheostat and handtesters in the same manner as specified in the throttle sensor Inspection.
- Adjust the position of the sensor until the output voltage is within the specified voltage range.

Throttle Sensor Output Voltage
Standard: 0.4 ~ 0.6 V (when throttle valve is completely closed.)

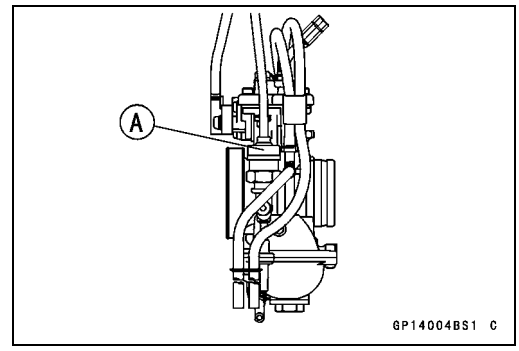
- If it is not within the specified voltage range, replace the sensor.

Fuel Cut Valve

Fuel Cut Valve Removal (KX250)

⚠ WARNING

Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well-ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.



- Disconnect the carburetor lead connector.
- Remove the carburetor.
- Drain the fuel from the float bowl removing the drain plug. After draining, install the drain plug securely.
- Loosen the fuel cut valve [A] and remove it.

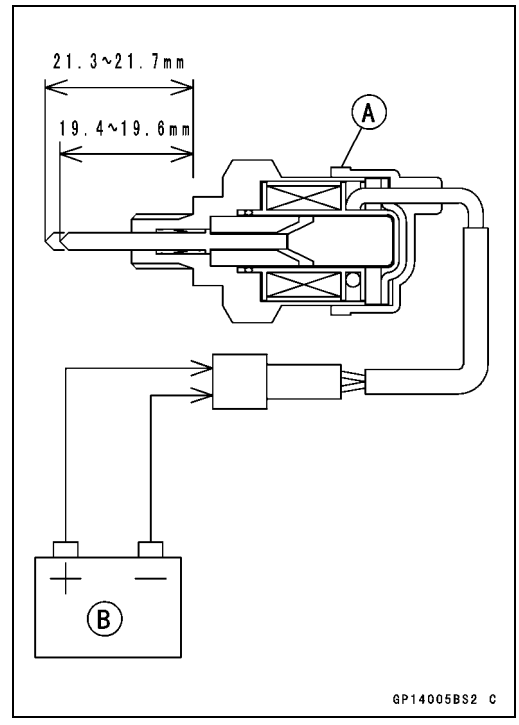
Fuel Cut Valve Installation (KX250)

- Installation is reverse of removal.

Fuel Cut Valve Inspection (KX250)

- Remove the fuel cut valve [A].
- Connect and disconnect one 12 V battery [B] to the carburetor lead connector as shown. The valve rod moves.

★If the protrusion exceeds the standard (too long or too short), the valve is defective and must be replaced.



Testing Fuel Cut Valve

Standard Protrusion:

When battery is disconnected ← 19.4 ~ 19.6 mm (0.76 ~ 0.77 in.)

When battery is connected ← 21.3 ~ 21.7 mm (0.84 ~ 0.85 in.)

Appendix

Table of Contents

Troubleshooting Guide 15-2
Cable, Wire and Hose Routing 15-6

Troubleshooting Guide

NOTE

○*This is not an exhaustive list, giving every possible cause for each problem listed. It is meant simply as a rough guide to assist the troubleshooting for some of the more common difficulties.*

Engine Doesn't Start, Starting Difficulty:

Engine won't turn over:
- Cylinder, piston seizure
- Crankshaft seizure
- Connecting rod small end seizure
- Connecting rod big end seizure
- Transmission gear or bearing seizure
- Kick shaft return spring broken
- Kick ratchet gear not engaging

No fuel flow:
- No fuel in tank
- Fuel tap turned off
- Tank cap air vent obstructed
- Fuel tap clogged
- Fuel line clogged
- Float valve clogged
- Fuel cut valve left close

Engine flooded:
- Float level too high
- Float valve worn or stuck open
- Starting technique faulty
- (when flooded, kick with the throttle fully open to
- allow more air to reach the engine.)

No spark; spark weak:
- Spark plug dirty, broken, or maladjusted
- Spark plug cap or high tension wiring trouble
- Spark plug cap not in good contact
- Spark plug incorrect
- C.D.I Unit trouble
- Ignition coil trouble
- Ignition coil resistor open
- Flywheel magneto damaged
- Wiring shorted or open

Fuel/air mixture incorrect:
- Idle adjusting screw maladjusted
- Slow jet or air passage clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter jet clogged

Compression Low:
- Spark plug loose
- Cylinder head not sufficiently tightened down
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/groove clearance excessive
- Cylinder head gasket damaged
- Cylinder head warped
- Cylinder base gasket damaged
- Read valve damaged
- Cylinder nut loose

Poor Running at Low Speed:

Spark weak:
- Spark plug dirty, broken, or maladjusted
- Spark plug cap or high tension wiring trouble
- Spark plug cap shorted or not in good contact
- Spark plug incorrect
- C.D.I Unit trouble
- Ignition coil trouble
- Flywheel magneto damaged
- Ignition coil lead or C.D.I Unit lead not in good contact

Fuel/air mixture incorrect:
- Idle adjusting screw maladjusted
- Slow jet or air passage clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter plunger stuck open
- Float level too high or too low
- Fuel tank air vent obstructed
- Fuel cut valve won't fully open
- Carburetor holder loose
- Air cleaner duct loose

Compression Low:
- Spark plug loose
- Cylinder head not sufficiently tightened down
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/groove clearance excessive
- Cylinder head gasket damaged
- Cylinder head warped
- Cylinder base gasket damaged
- Reed valve damaged
- Cylinder nut loose

Kips ports stuck open:
- KIPS exhaust valve stuck open (valve seizure, or carbon accumulation)
- KIPS exhaust valves assembled incorrectly
- Exhaust advancer spring damaged
- Exhaust valve operating rod seizure
- Rod (for KIPS) seized in cylinder

Other:
- C.D.I Unit trouble
- Transmission oil viscosity too high
- Brake dragging

Troubleshooting Guide

Poor Running or No Power at High Speed:

Firing incorrect:
- Spark plug dirty, damaged, or maladjusted
- Spark plug cap or high tension wiring damaged
- Spark plug cap shorted or not in good contact
- Spark plug incorrect
- C.D.I Unit trouble
- Ignition coil trouble
- Flywheel magneto damaged
- Ignition coil lead or C.D.I Unit lead not in good contact

Fuel/air mixture incorrect:
- Main jet clogged or wrong size
- Jet needle or needle jet worn
- Jet needle clip in wrong position
- Float level too high or too low
- Fuel cut valve won't fully open
- Air jet or air passage clogged
- Air cleaner clogged, poorly sealed, or missing
- Starter plunger stuck open
- Fuel to carburetor insufficient
- Water or foreign matter in fuel
- Fuel tank air vent obstructed
- Carburetor holder loose
- Air cleaner duct loose
- Fuel tap clogged
- Fuel line clogged

Compression low:
- Spark plug loose
- Cylinder head not sufficiently tightened down
- Cylinder, piston worn
- Piston ring bad (worn, weak, broken, or sticking)
- Piston ring/and clearance excessive
- Cylinder head gasket damaged
- Cylinder head warped
- Cylinder base gasket damaged
- Reed valve damaged
- Cylinder nut loose

Engine rpm will not rise properly:
- Starter plunger stuck open
- Float level too high or too low
- Main jet clogged
- Throttle valve does not fully open
- Air cleaner clogged
- Muffler clogged
- Water or foreign matter in fuel
- Cylinder exhaust port clogged
- Brake dragging
- Clutch slipping
- Overheating
- Transmission oil level too high
- Transmission oil viscosity too high
- Crankshaft bearing worn or damaged

KIPS ports stuck closed:
- KIPS ports stuck closed
- KIPS exhaust valves stuck closed (valve seizure, or carbon accumulation)
- KIPS exhaust valves assembled incorrectly
- KIPS ports clogged (carbon accumulation)
- Exhaust valve operating rod seizure
- Rod (for KIPS) seized in cylinder

Knocking:
- Carbon built up in combustion chamber
- Fuel poor quality or incorrect
- Spark plug incorrect
- C.D.I Unit trouble

Overheating:

Firing incorrect:
- Spark plug dirty, broken, or maladjusted
- Spark plug incorrect
- C.D.I Unit trouble

Fuel/air mixture incorrect:
- Main jet clogged or wrong size
- Fuel level in carburetor float bowl too low
- Fuel cut valve won't fully open
- Carburetor holder loose
- Air cleaner poorly sealed, or missing
- Air cleaner duct poorly sealed
- Air cleaner clogged

Compression high:
- Carbon built up in combustion chamber

Engine load faulty:
- Brake dragging
- Clutch slipping
- Transmission oil level too high
- Transmission oil viscosity too high

Lubrication inadequate:
- Transmission oil level too low
- Transmission oil poor quality or incorrect

Coolant incorrect:
- Coolant level too low
- Coolant deteriorated

Cooling system component incorrect:
- Radiator clogged
- Radiator cap trouble
- Water pump not rotating

Clutch Operation Faulty:

Clutch slipping:
- No clutch lever play
- Clutch cable maladjusted
- Clutch inner cable catching
- Friction plate worn or warped
- Steel plate worn or warped
- Clutch spring broken or weak
- Clutch release mechanism trouble
- Clutch hub or housing unevenly worn

Troubleshooting Guide

Clutch not disengaging properly:
- Clutch lever play excessive
- Clutch plate warped or too rough
- Clutch spring tension uneven
- Transmission oil deteriorated
- Transmission viscosity too high
- Transmission oil level too high
- Clutch housing frozen on drive shaft
- Clutch release mechanism trouble

Gear Shifting Faulty:

Doesn't into gear; shift pedal doesn't return:
- Clutch not disengaging
- Shift fork bent or seized
- Gear stuck on the shaft
- Gear positioning lever binding
- Shift return spring weak or broken
- Shift return spring pin loose
- Shift mechanism arm spring broken
- Shift mechanism arm broken
- Shift drum broken

Jumps out of gear:
- Shift fork worn
- Gear groove worn
- Gear dogs and/or dog holes worn
- Shift drum groove worn
- Gear positioning lever spring weak or broken
- Shift fork guide pin worn
- Drive shaft, output shaft, and/or gear splines worn

Overshifts:
- Gear positioning lever spring weak or broken
- Shift mechanism arm spring broken

Abnormal Engine Noise:

Knocking:
- C.D.I Unit trouble
- Carbon built up in combustion chamber
- Fuel poor quality or incorrect
- Spark plug incorrect
- Overheating

Piston slap:
- Cylinder/piston clearance excessive
- Cylinder, piston worn
- Connecting rod bent
- Piston pin, piston pin hole worn

Other noise:
- Connecting rod small end clearance excessive
- Connecting rod big end clearance excessive
- Piston ring worn, broken or stuck
- Piston seizure or damaged
- Cylinder head gasket leaking
- Exhaust pipe leaking at cylinder head connection
- Crankshaft runout excessive
- Engine mounts loose
- Crankshaft bearing worn
- Primary gear worn or chipped

Abnormal Drive Train Noise

Clutch noise:
- Clutch housing/friction plate clearance excessive
- Clutch housing gear/primary gear backlash excessive
- Metal chip jammed in clutch housing gear teeth

Transmission noise:
- Crankcase bearing worn or damaged
- Transmission gear worn or chipped
- Metal chip jammed in gear teeth
- Transmission oil insufficient or too thin
- Kick ratchet gear not properly disengaging from kick gear
- Output shaft idle gear worn or chipped

Drive chain noise:
- Drive chain adjusted improperly
- Chain worn
- Rear and/or engine sprocket(s) worn
- Chain lubrication insufficient
- Rear wheel misaligned

Abnormal Frame Noise:

Front fork noise:
- Oil insufficient or too thin
- Spring weak or broken
- Front fork air pressure high

Rear shock absorber noise:
- Shock absorber damaged

Disc brake noise:
- Pad installed incorrectly
- Pad surface glazed
- Disc warped
- Caliper trouble
- Cylinder damaged

Other noise
- Bracket, nut, bolt, etc. not properly mounted or tightened

Exhaust Smoke:

Excessive white smoke:
- Throttle cable maladjusted

Brownish smoke:
- Air cleaner clogged
- Main jet too large of fallen out
- Starter plunger stuck open
- Float level too high

Troubleshooting Guide

Handling and/or Stability Unsatisfactory:

Handlebar hard to turn:
- Control Cable routing incorrect
- Wiring routing incorrect
- Steering stem locknut too tight
- Bearing ball damaged
- Bearing race dented or worn
- Steering stem bearing lubrication inadequate
- Steering stem bent
- Tire air pressure too low

Handlebar shakes or excessively vibrates:
- Tire worn
- Swingarm sleeve or needle bearing damaged
- Rim warped, or not balanced
- Front, rear axle runout excessive
- Wheel bearing worn
- Handlebar clamp loose
- Steering stem head nut loose

Handlebar pulls to one side:
- Frame bent
- Wheel misalignment
- Swingarm bent or twisted
- Swingarm pivot shaft runout excessive
- Steering maladjusted
- Steering stem bent
- Front fork leg bent
- Right/left front fork oil level uneven

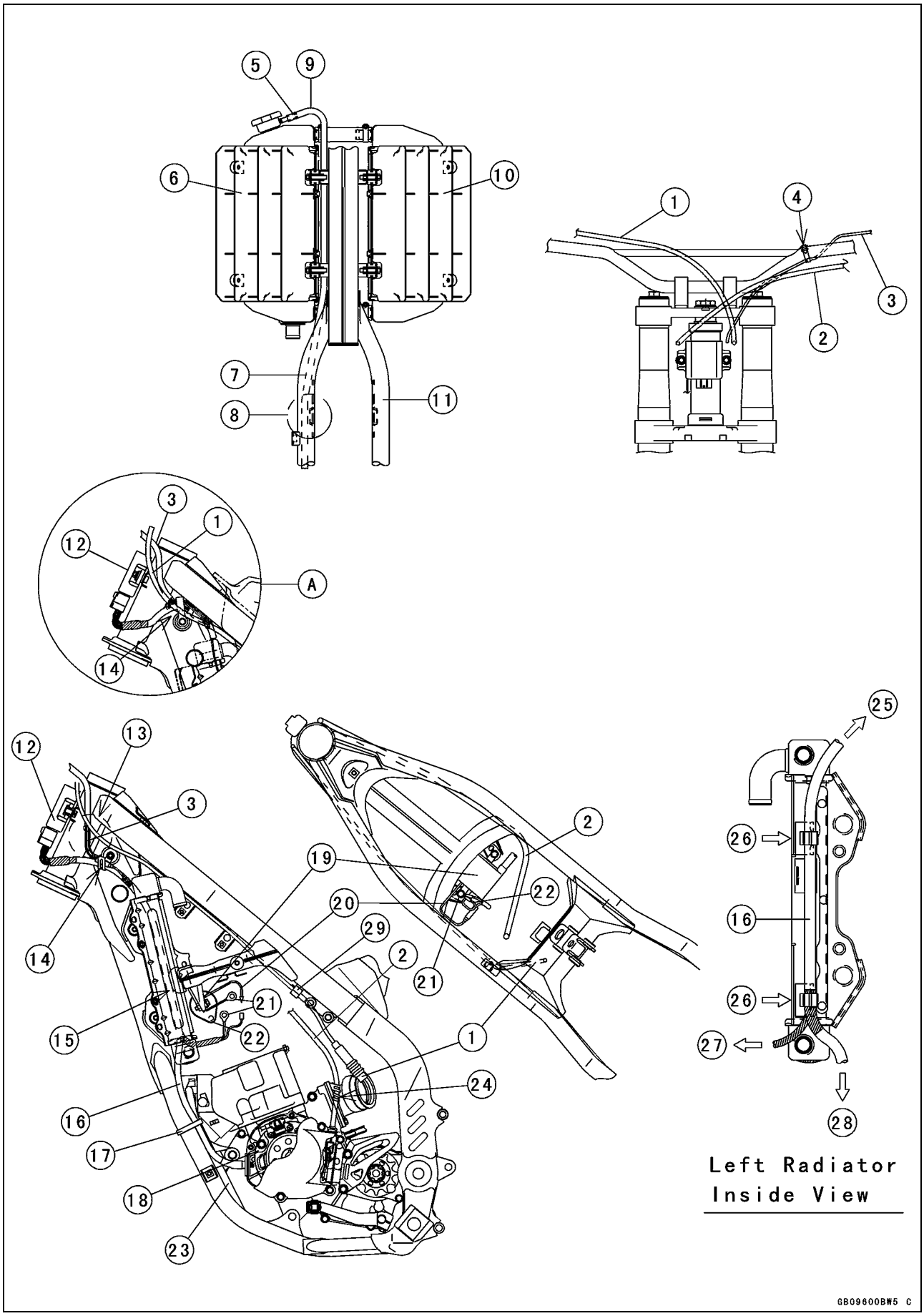
Shock absorption unsatisfactory:
- (Too hard)
- Front fork oil excessive
- Front fork oil viscosity too high
- Front fork leg bent
- Front fork air pressure high
- Tire air pressure too high
- Rear shock absorber maladjusted
- (Too soft)
- Front fork oil insufficient and/or leaking
- Front fork oil viscosity too low
- Front fork, rear shock absorber spring weak
- Rear shock absorber gas leaking
- Rear shock absorber maladjusted

Brake Doesn't Hold:

Disc brake:
- Air in the brake line
- Pad or disc worn
- Brake fluid leak
- Disc warped
- Contaminated pads
- Brake fluid deteriorated
- Primary or secondary cup damaged
- Master cylinder scratched inside
- Brake maladjustment (lever or pedal play excessive)

Cable, Wire and Hose Routing

KX125:



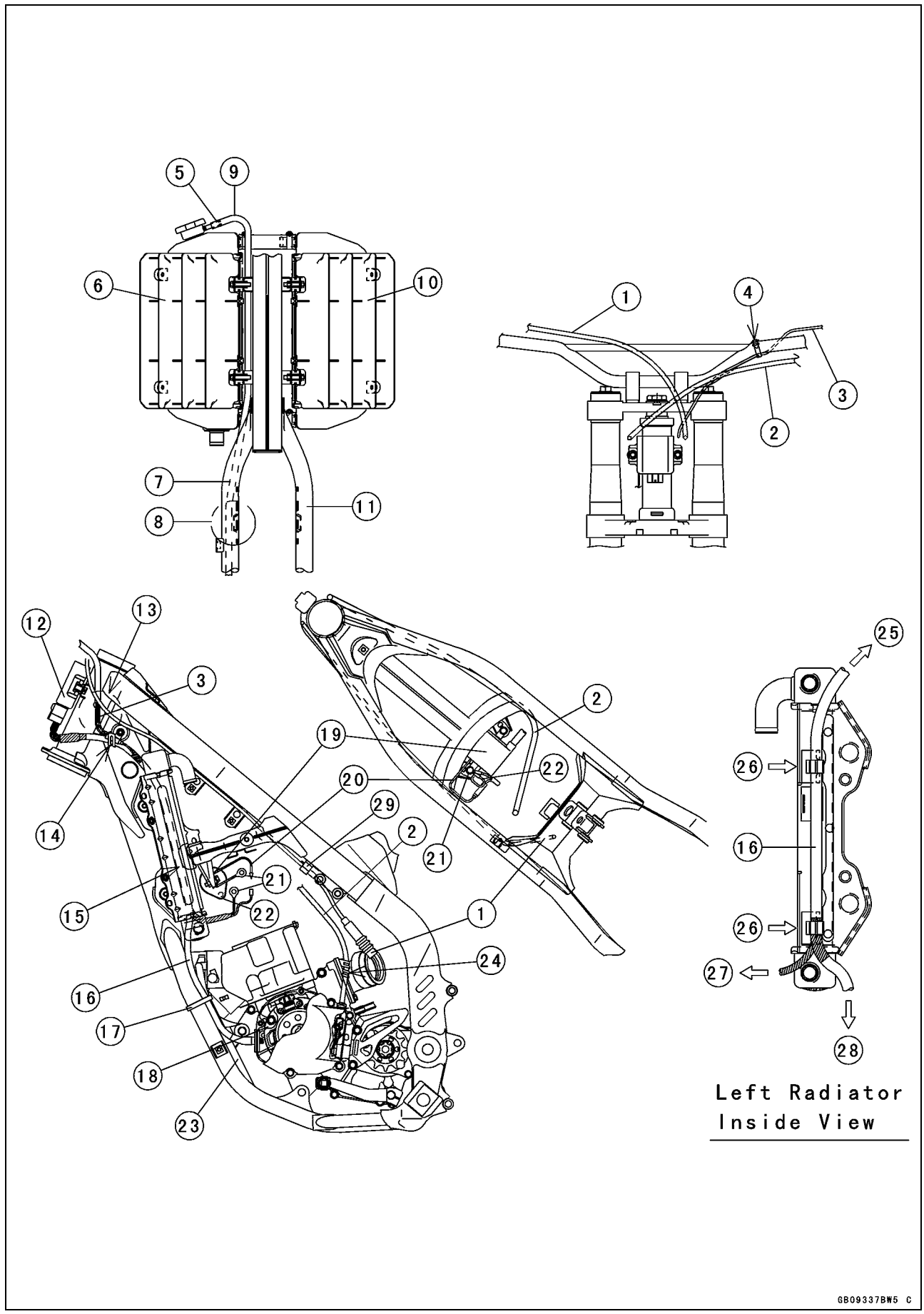
Cable, Wire and Hose Routing

1. Throttle Cable
2. Clutch Cable
3. Engine Stop Switch Lead
4. Band
5. Radiator Overflow Tube
6. Right Screen
7. Run the overflow tube backward of the down tube.
8. Run the tube outside of the engine mount bracket.
9. Run the tube forward of the radiator connection hose.
10. Left Screen
11. Frame
12. C.D.I. Unit
13. Run the throttle cable left side of the stop switch lead.
14. Clamp the magneto lead (harness) and stop switch lead connector. Do not clamp the throttle cable.
15. Run the magneto lead (Harness) thought the frame and radiator.
16. Magneto Lead (Harness)
17. Band (Clamp the magneto lead and air vent tube)
18. Magneto
19. Ignition Coil
20. Ignition Coil Primary Winding Lead
21. Tighten together with ignition coil ground lead and magneto lead (harness) ground as figure.
22. Ignition Coil Ground Lead
23. Air Vent Hose
24. Clamp the clutch cable.
25. To the C.D.I. Unit
26. Clamps (Install the magneto lead from this side)
27. To the Ignition coil
28. To the Magneto
29. Mating section on the clamp at outside. (KX125-M2~)

A: KX125-M3 ~ Model

Cable, Wire and Hose Routing

KX250:

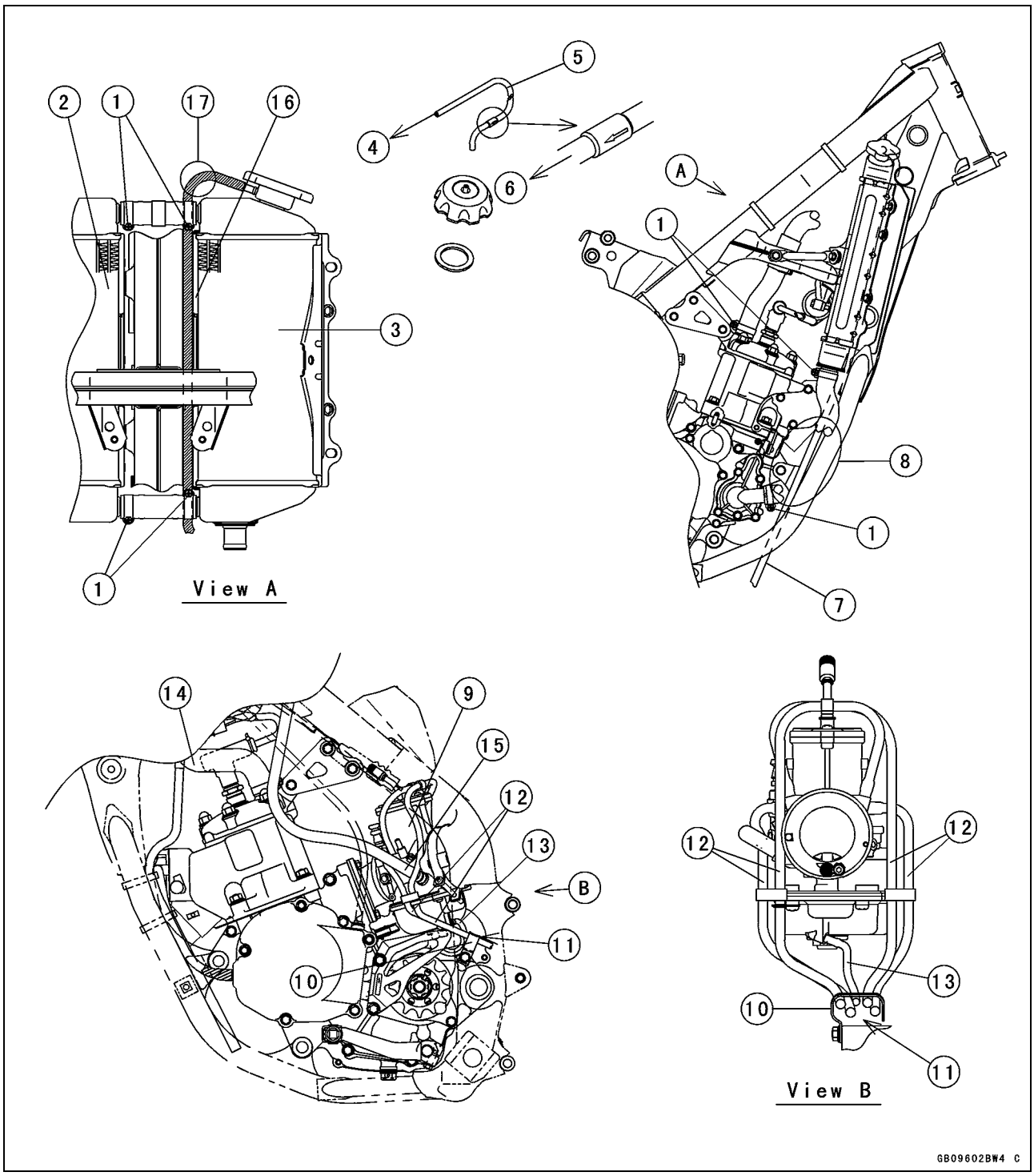


Cable, Wire and Hose Routing

1. Throttle Cable
2. Clutch Cable
3. Engine Stop Switch Lead
4. Band
5. Radiator Overflow Tube
6. Right Screen
7. Run the tube backward of the down tube
8. Run the tube outside of the engine mount bracket
9. Run the tube forward of the radiator connection pipe.
10. Left Screen
11. Frame
12. C.D.I. Unit
13. Run the throttle cable leftside of main harness.
14. Clamp the main harness and stop switch lead connector.
15. Regulator/Rectifier
16. Do not clamp the throttle cable.
17. Bands
18. Main Harness
19. Magneto Lead Connector
20. Ignition Coil
21. Ignition Coil Primary Winding Lead
22. Ignition Coil Ground Lead
23. Tighten together with the ignition coil lead ground and main harness ground.
24. Carburetor Lead Connector
25. Carburetor
26. Magneto
27. Clamp the clutch cable
28. Clamp the magneto lead
29. Install the spark plug cap so that the high-tension cable and spark plug cap do not touch the cooling hose.
30. Run the clutch cable through the clamps.
31. Mating section on the clamp at outside. (KX250-M2~)

Cable, Wire and Hose Routing

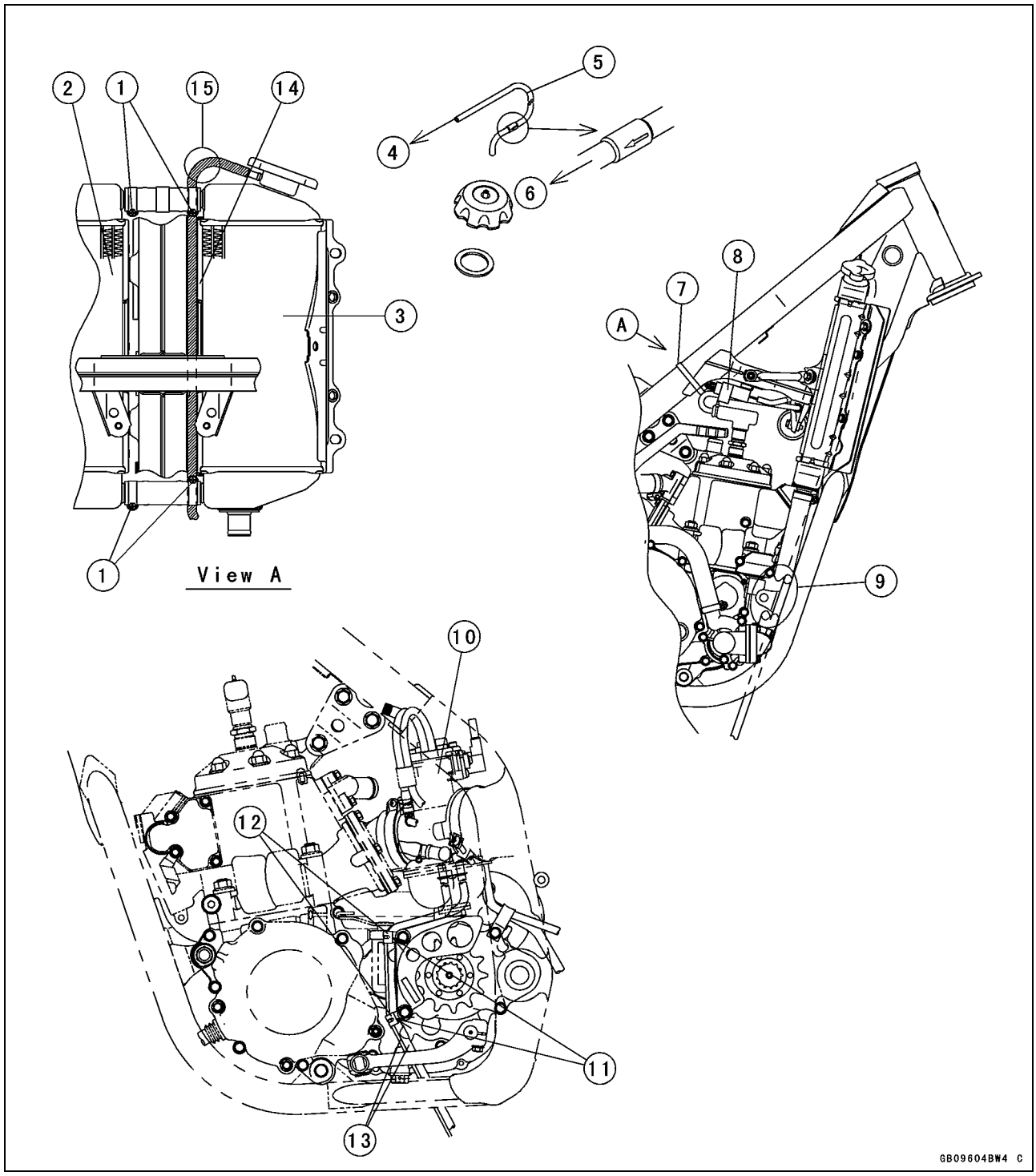
KX125:



1. Clamps
2. Left Radiator
3. Right Radiator
4. To the steering stem hole.
5. Air Vent Hose
6. To the fuel tank cap
7. Radiator Overflow Tube
8. Run the radiator over flow tube outside of the engine mount bracket
9. Carburetor
10. Clamp
11. Run the air vent hoses and overflow tube through the clamp.
12. Air Vent Hoses
13. Over Flow Tube
14. Cooling Hose
15. Install the fuel hose between the vent hoses.
16. Run the radiator over flow tube between frame and right radiator.
17. Pay attention to inflection of the radiator over flow tube.

Cable, Wire and Hose Routing

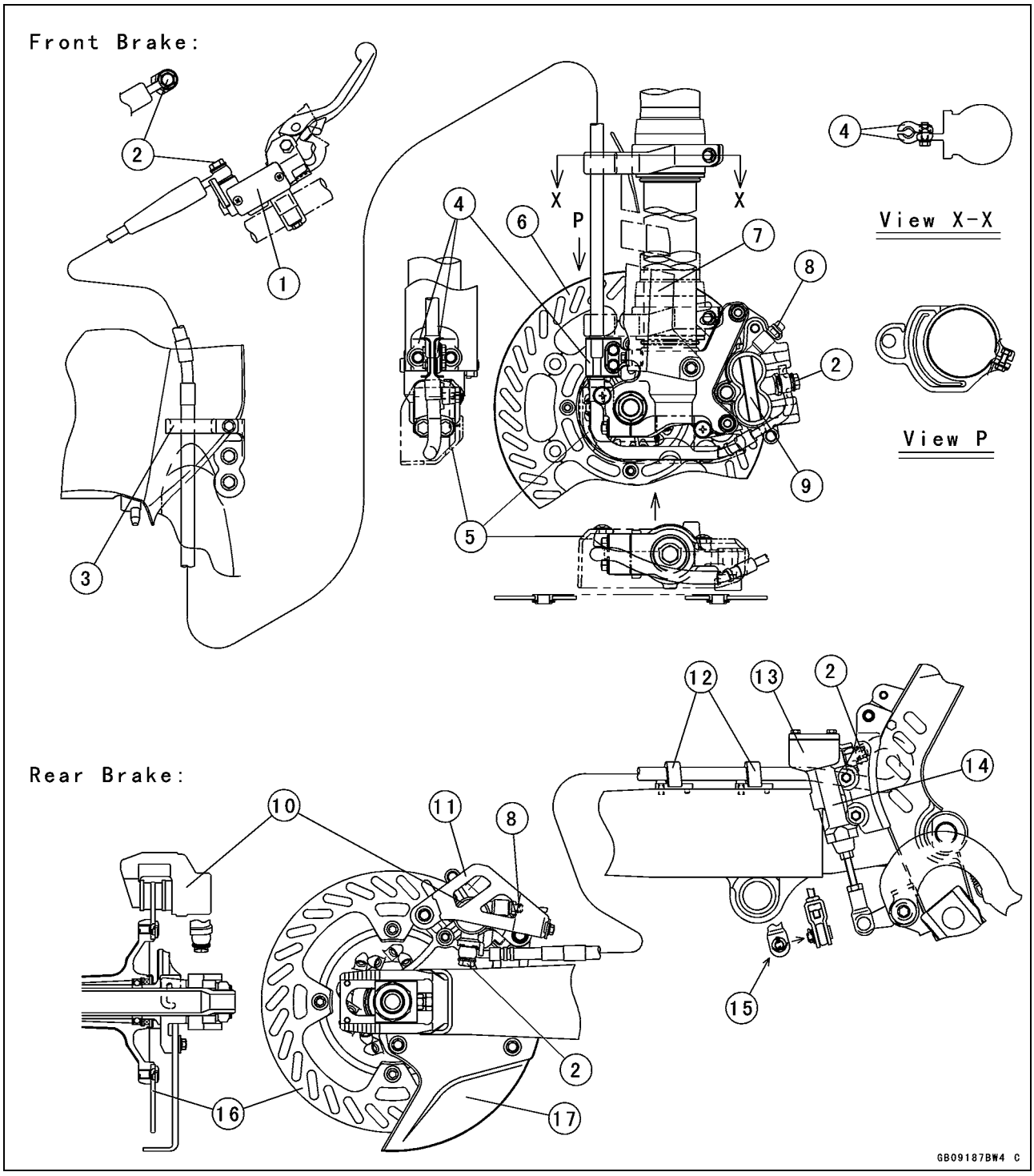
KX250:



1. Clamps
2. Left Radiator
3. Right Radiator
4. To the steering stem hole.
5. Air Vent Hose
6. To the fuel tank cap
7. Band
8. Carburetor Lead Connector
9. Run the radiator overflow tube outside of the engine mount bracket.
10. Carburetor
11. Clamp the air vent hoses with clamps which are installed together with engine sprocket cover and run them along with the engine sprocket cover.
12. Clamps
13. Air Vent Hoses
14. Run the radiator over flow tube between frame and right radiator.
15. Pay attention to inflaction of the radiator over flow tube.

Cable, Wire and Hose Routing

KX125/250-M1 Model

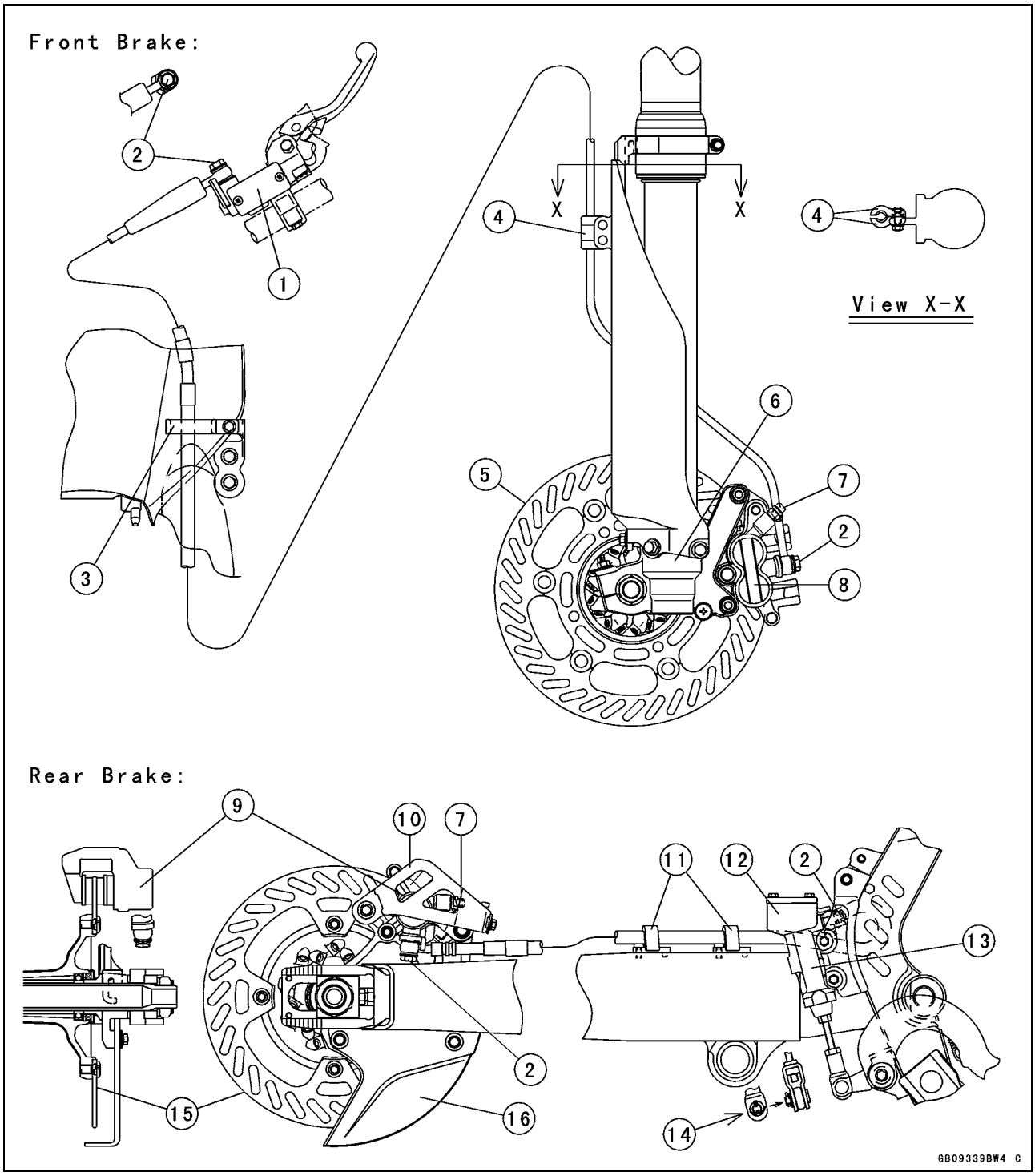


Cable, Wire and Hose Routing

1. Front Brake Reservoir
2. Banjo Bolts
3. Clamp
4. Clamp Brackets
5. Hose Guard
6. Front Brake Disc
7. Front Fork Guard
8. Bleed Valves
9. Front Brake Caliper
10. Rear Brake Caliper
11. Caliper Guard
12. Clamps
13. Rear Brake Reservoir
14. Rear Brake Master Cylinder
15. Bend the cotter pin end by along the joint pin.
16. Rear Brake Disc
17. Disk Guard

Cable, Wire and Hose Routing

KX125/250-M2 Model~



Cable, Wire and Hose Routing

1. Front Brake Reservoir
2. Banjo Bolts
3. Clamp
4. Clamp Brackets
5. Front Brake Disc
6. Front Fork Guard
7. Bleed Valves
8. Front Brake Caliper
9. Rear Brake Caliper
10. Caliper Guard
11. Clamps
12. Rear Brake Reservoir
13. Rear Brake Master Cylinder
14. Bend the cotter pin end by along the joint pin.
15. Rear Brake Disc
16. Disk Guard

MODEL APPLICATION

Year	Model	Beginning Frame No.
2003	KX125-M1	JKAKXRMC□3A000001 or JKAKX125MMA000001
2003	KX250-M1	JKAKXMMC□3A000001 or JKAKX250MMA000001
2004	KX125-M2	JKAKXRMC□4A010001 or JKAKX125MMA010001
2004	KX250-M2	JKAKXMMC□4A010001 or JKAKX250MMA010001
2005	KX125-M3	JKAKXRMC 5A016001 or JKAKX125MMA016001

□:This digit in the frame number changes from one machine to another.

Kawasaki
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